S. Hrg. 100-560

# SAFETY OVERSIGHT FOR DEPARTMENT OF ENERGY NUCLEAR FACILITIES

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## HEARINGS

BEFORE THE

SUBCOMMITTEE ON
STRATEGIC FORCES AND NUCLEAR DETERRENCE

OF THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

ON

## S. 1085

TO CREATE AN INDEPENDENT OVERSIGHT BOARD TO ENSURE THE SAFETY OF UNITED STATES GOVERNMENT NUCLEAR FACILITIES, TO APPLY THE PROVISIONS OF OSHA TO CERTAIN DEPARTMENT OF ENERGY NUCLEAR FACILITIES, TO CLARIFY THE JURISDICTION AND POWERS OF GOVERNMENT AGENCIES DEALING WITH NUCLEAR WASTES, TO ENSURE INDEPENDENT RESEARCH ON THE EFFECTS OF RADIATION ON HUMAN BEINGS, AND FOR OTHER PURPOSES

OCTOBER 22, 26, 27, 30; NOVEMBER 3, 1987

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# SAFETY OVERSIGHT FOR DEPARTMENT OF ENERGY NUCLEAR FACILITIES

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THURSDAY, OCTOBER 22, 1987

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON STRATEGIC FORCES
AND NUCLEAR DETERRENCE,
*Washington, DC.*

The subcommittee met, pursuant to notice, at 10:34 a.m., in room SR-222, Russell Senate Office Building, Senator J. James Exon (chairman) presiding.

Present: Senators Exon, Wirth, Thurmond, and Cohen.

Staff present: Robert E. Bayer, Robert F. Bott, Sherri Wasserman Goodman, Ronald P. Kelly, and T. Kirk McConnell, professional staff members; Mickie Jan Wise, staff assistant.

Also present: Jeffrey B. Subko, assistant to Senator Exon; Edward M. McGaffigan, Jr., assistant to Senator Bingaman; Phillip P. Upschulte and Milton D. Beach, assistants to Senator Glenn; James M. Bodner, assistant to Senator Cohen; and Henry D. Sokolski, assistant to Senator Quayle.

[The bill S. 1085 follows:]

100TH CONGRESS
1ST SESSION

# S. 1085

**[Report No. 100–173]**

To create an independent oversight board to ensure the safety of United States Government nuclear facilities, to apply the provisions of OSHA to certain Department of Energy nuclear facilities, to clarify the jurisdiction and powers of Government agencies dealing with nuclear wastes, to ensure independent research on the effects of radiation on human beings, and for other purposes.

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## IN THE SENATE OF THE UNITED STATES

APRIL 23 (legislative day, APRIL 21), 1987

Mr. GLENN (for himself, Mr. METZENBAUM, Mr. ADAMS, Mr. BUMPERS, Ms. MIKULSKI, Mr. RUDMAN, Mr. LEVIN, Mr. WIRTH, Mr. PRYOR, Mr. COHEN, Mr. HEINZ, Mr. ROTH, Mr. BIDEN, and Mr. HOLLINGS) introduced the following bill; which was read twice and referred to the Committee on Governmental Affairs

SEPTEMBER 24 (legislative day, SEPTEMBER 22), 1987

Reported by Mr. GLENN, with an amendment and an amendment to the title

[Strike out all after the enacting clause and insert the part printed in italic]

OCTOBER 9 (legislative day, SEPTEMBER 25), 1987

Referred to the Committee on Armed Services, with instructions that the committee have the authority to report amendments only to title I of the bill, and that the committee be discharged from all further consideration of the measure if it has not reported the bill by November 2, 1987

OCTOBER 20 (legislative day, OCTOBER 16), 1987

Ordered, the referral of October 9 to the Committee on Armed Services be extended to November 9, 1987, and that the committee have the authority to report amendments only to title I of the bill

NOVEMBER 4 (legislative day, OCTOBER 16), 1987

Ordered, the referral of October 9 to the Committee on Armed Services be extended to November 24, 1987, and that the committee have the authority to report amendments only to title I of the bill

# A BILL

To create an independent oversight board to ensure the safety of United States Government nuclear facilities, to apply the provisions of OSHA to certain Department of Energy nuclear facilities, to clarify the jurisdiction and powers of Government agencies dealing with nuclear wastes, to ensure independent research on the effects of radiation on human beings, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

### ~~SHORT TITLE~~

~~SECTION 1. That this Act may be cited as the "Nuclear Protections and Safety Act of 1987".~~

## ~~TITLE I—INDEPENDENT NUCLEAR SAFETY BOARD OVERSIGHT OVER DEPARTMENT OF ENERGY FACILITIES~~

### ~~SHORT TITLE~~

~~SEC. 101. This title may be cited as the "Department of Energy Nuclear Safety Board Oversight Act of 1987".~~

### ~~FINDINGS AND PURPOSE~~

~~SEC. 102. (a) The Congress finds that—~~

~~(1) there is a great need for vigorous investigation of events at nuclear facilities controlled by the Department of Energy; and~~

~~(2) continual review and assessment by expert outside authorities would be of assistance in identifying~~

~~actual or potential safety problems and needed standards at these nuclear facilities.~~

~~(b) The purpose of this title is to establish an Independent Department of Energy Nuclear Safety Board which shall promote nuclear safety at Department of Energy nuclear facilities by—~~

~~(1) annually reviewing and evaluating the implementation of health and safety standards, as well as all applicable Department of Energy Orders at each nuclear facility;~~

~~(2) conducting independent investigations of events at Department of Energy nuclear facilities;~~

~~(3) reviewing and assessing the content and application of all Orders governing Department of Energy nuclear facilities;~~

~~(4) recommending to the Department of Energy improvements in its nuclear facilities, operations, and health and safety standards; and~~

~~(5) informing the Congress of its findings and recommendations.~~

~~ESTABLISHMENT OF NUCLEAR SAFETY BOARD~~

~~SEC. 103. Title II of the Energy Reorganization Act of 1974 (42 U.S.C. 5841 et seq.) is amended by adding at the end thereof the following new section:~~

### ~~“INDEPENDENT NUCLEAR SAFETY BOARD~~

~~“SEC. 212. (a) There is established a Department of Energy Nuclear Safety Board (hereafter in this section referred to as the ‘Board’).~~

~~“(b)(1) The Board shall be composed of 3 members appointed by the President, by and with the advice and consent of the Senate, from among respected experts in the field of nuclear safety with a demonstrated competence and knowledge relevant to the independent investigative and prescriptive functions of the Board. No more than 2 members of the Board shall be of the same political party. Not later than 90 days after the date of the enactment of this section, the President shall submit such nominations for appointment to the Board.~~

~~“(2) Any vacancy in the membership of the Board shall be filled in the same manner in which the original appointment was made.~~

~~“(3) No member of the Board shall have any significant financial relationship in any firm, company, corporation, or other business entity engaged in activities regulated by the Commission either as licensee or contractor, or have such a relationship within the 2 years preceding his appointment.~~

~~“(c)(1) The Chairman and Vice Chairman of the Board shall be designated by the President. The Chairman and Vice Chairman may be reappointed to such offices.~~

~~"(2) The Chairman shall be the chief executive officer of the Board and shall, subject to such policies as the Board may establish, exercise the functions of the Board with respect to—~~

~~"(A) the appointment and supervision of personnel employed by the Board;~~

~~"(B) the organization of any administrative units established by the Board; and~~

~~"(C) the use and expenditure of funds.~~

~~The Chairman may delegate any of the functions under this paragraph to any other member or to any appropriate employee or officer of the Board.~~

~~"(3) The Vice Chairman shall act as Chairman in the event of the absence or incapacity of the Chairman or in case of a vacancy in the office of Chairman.~~

~~"(d)(1) Except as provided under paragraph (2), the members of the Board shall serve for terms of 6 years. Members of the Board may be reappointed.~~

~~"(2) Of the members first appointed—~~

~~"(A) one shall be appointed for a term of 2 years;~~

~~"(B) one shall be appointed for a term of 4 years; and~~

~~"(C) one shall be appointed for a term of 6 years, as designated by the President at the time of appointment.~~

~~"(3) Any member appointed to fill a vacancy occurring before the expiration of the term of office for which such member's predecessor was appointed shall be appointed only for the remainder of such term. A member may serve after the expiration of the member's term until a successor has taken office.~~

~~"(4) Any member of the Board may be removed by the President for inefficiency, neglect of duty, or malfeasance in office.~~

~~"(e) Two members of the Board shall constitute a quorum for issuing reports, but a lesser number may hold hearings.~~

~~"(f) The Board shall hire such staff and make such expenditures for consultants and services as are necessary.~~

~~"(g) The Board shall have the following functions:~~

~~"(1) The Board shall annually review and evaluate the implementation of health and safety standards, as well as all applicable Department of Energy Orders, at each Department of Energy nuclear facility. The Board shall annually review and assess the content and application of all Orders governing Department of Energy nuclear facilities, and recommend necessary changes in their content and application.~~

~~"(2)(A)(i) The Board shall investigate those events at Department of Energy nuclear facilities which the~~

~~Board determines to be significant because of possible adverse effects on the health or safety of the public or because such events could be the precursors of events that may adversely affect the health or safety of the public.~~

~~"(ii) The Board may request the Secretary of Energy to make an investigation of the events described in subdivision (i) and to report its findings to the Board in a timely fashion. Whenever the Board concludes such an investigation, the Board may analyze the findings of the Secretary for the purpose of making its own conclusions and recommendations.~~

~~"(B) The purpose of any Board investigation under this paragraph shall be—~~

~~"(i) to determine if the Secretary is adequately implementing health and safety standards, as well as all applicable Department of Energy Orders, at Department of Energy nuclear facilities;~~

~~"(ii) to ascertain information concerning the circumstances of the event involved, and its implications for the public health and safety;~~

~~"(iii) to determine whether such event is part of a pattern of similar events at other Department of Energy nuclear facilities which could adversely~~

~~"(5) The Board may evaluate information received from the scientific and industrial communities, and from the interested public, with respect to—~~

~~"(A) events with actual or potential adverse effects on health and safety; or~~

~~"(B) suggestions for specific measures to improve health and safety at Department of Energy nuclear facilities.~~

~~"(6)(A) The Board shall recommend to the Secretary those specific measures that should be adopted to minimize the likelihood that events will occur at any Department of Energy nuclear facility which could adversely affect the public health or safety. The Secretary shall respond in writing to the recommendations of the Board within 120 days of receipt of such recommendations. Such written response shall detail specific measures adopted by the Secretary in response to such recommendations.~~

~~"(B) The recommendations of the Board made pursuant to subparagraph (A) shall also be sent to Congress, and when possible, made available to Federal, State, and local government agencies, concerned with health and safety at Department of Energy nuclear facilities, and to the public.~~

~~"(7)(A) The Board may establish reporting requirements which shall be binding upon the Secretary.~~

~~"(B)(i) The information which the Board may require to be reported under this paragraph may include any materials designated as classified material pursuant to the Atomic Energy Act of 1954, or any materials designated as safeguards information and protected from disclosure under section 147 of the Atomic Energy Act of 1954.~~

~~"(ii) Information received by the Board may be made available to the public upon identifiable request, and at reasonable cost. Nothing contained in this section shall be deemed to require the release of any information described by subsection (b) of section 552 of title 5, United States Code, or which is otherwise protected by law from disclosure to the public.~~

~~"(C) Notwithstanding any provision of law, the Secretary of Energy and all contractors operating Department of Energy nuclear facilities shall fully cooperate with the Board in the investigations and provide ready access to such facilities and to all information necessary to complete the review and evaluation of the Board.~~

~~"(D) In order to protect information, the Secretary of Energy may deny access to information received by the Board to any person who—~~

~~"(i) has not been granted an appropriate security clearance or access authorization by the Secretary of Energy; or~~

~~"(ii) does not need such access in connection with the duties of such person to enforce this paragraph.~~

~~"(8) The Board shall issue periodic reports which shall be made available to the Congress, and when possible, to Federal, State, and local government agencies, and the public concerned with health and safety at Department of Energy nuclear facilities. Such reports shall contain recommendations of specific measures to reduce the likelihood of occurrence of nuclear events similar to those investigated by the Board and of corrective steps to enhance or improve safety conditions at such facilities investigated by the Board and other facilities as considered appropriate by the Board.~~

~~"(h)(1) Within 1 year after the receipt of the first annual review issued by the Board pursuant to subsection (g)(1), and for each subsequent annual review issued by the Board, the Secretary of Energy shall implement each recommendation of the Board with respect to each operating Department of~~

~~Energy nuclear facility covered by the report unless the Secretary notifies the Board and the Congress (and includes specific facts and findings in support) that implementation of the recommendations cannot be accomplished because—~~

~~“(A) it is technically infeasible; or~~

~~“(B) the President specifically exempts the facility from implementing the recommendations by determining it is in the paramount interest of the United States to do so.~~

~~“(2)(A) Any exemption granted under paragraph (1) shall be for a period not in excess of 1 year, but additional 1 year exemptions may be granted upon the President's making a new determination. The President shall report each January to the Congress regarding all exemptions from the Board's recommendations granted during the preceding calendar year, together with specific facts and findings in support of granting each such exemption.~~

~~“(B) If the reason for an exemption granted under paragraph (1) is, in whole or in part, the cost of implementing the recommendation, no such exemption may be renewed due to lack of appropriation unless the President shall have specifically requested such appropriations as a part of the budgetary process, and the Congress shall have failed to make available such requested appropriation.~~

~~"(i)(1) The Board or, on the authorization of the Board, any member thereof, may, for the purpose of carrying out the provisions of this section, hold such hearings and sit and act at such times and places, and require, by subpena or otherwise, the attendance and testimony of such witnesses and the production of such evidence as the Board or an authorized member may find advisable.~~

~~"(2)(A) Subpenas may be issued only under the signature of the Chairman or any member of the Board designated by him and shall be served by any person designated by the Chairman or any member. The attendance of witnesses and the production of evidence may be required from any place in the United States at any designated place of hearing in the United States.~~

~~"(B) Any member of the Board may administer oaths or affirmations to witnesses appearing before the Board.~~

~~"(C) Any person who willfully neglects or refuses to qualify as a witness, or to testify, or to produce any evidence in obedience to any subpena duly issued under the authority of this paragraph shall be fined not more than $500, or imprisoned for not more than 6 months, or both. Upon certification by the Chairman of the Board of the facts concerning any willful disobedience by any person to the United States Attorney for any judicial district in which the person resides~~

~~or is found, the United States Attorney may proceed by information for the prosecution of the person for the offense.~~

~~“(j) For purposes of this section, the term ‘Department of Energy nuclear facility’ means—~~

~~“(1) a production facility or utilization facility (as defined in section 11 of the Atomic Energy Act of 1954 (42 U.S.C. 2014)) under the control or jurisdiction of the Secretary of Energy;~~

~~“(2) a facility subject to such Act (42 U.S.C. 2011 et seq.) under the control or jurisdiction of the Secretary; and~~

~~“(3) a waste storage facility under the control of jurisdiction of the Secretary, other than a facility developed pursuant to the Nuclear Waste Policy Act of 1982 (42 U.S.C. 10101 et seq.) and licensed by the Nuclear Regulatory Commission.~~

~~The term does not include facilities or activities covered under Executive Order 12344 (codified in 42 U.S.C. 7158).~~

~~“(k) There are hereby authorized to be appropriated for each of the fiscal years 1988, 1989, 1990, 1991, 1992, and 1993 the sum of $5,000,000.”.~~

### ~~ASSISTANCE BY OTHER AGENCIES~~

~~SEC. 104. (a) Section 29 of the Atomic Energy Act of 1954 (42 U.S.C. 2039) is amended by—~~

~~(1) inserting “a.” before “There is hereby established”; and~~

~~(2) adding at the end thereof the following new subsection:~~

~~"b. (1) The Advisory Committee on Reactor Safeguards shall provide assistance as requested by the Independent Nuclear Safety Board (as established in section 212 of the Energy Reorganization Act of 1974).~~

~~"(2) To assist the Board, the Advisory Committee on Reactor Safeguards is authorized to expand its membership by up to 5 additional members and corresponding staff which shall be dedicated to assisting the Independent Nuclear Safety Board.~~

~~"(3) The Secretary of Energy shall fully reimburse the Advisory Committee on Reactor Safeguards for all costs incurred in assisting the Board for activities conducted pursuant to this subsection.".~~

~~(b) Section 309 of the Department of Energy Organization Act (Public Law 95-91; 42 U.S.C. 7158) is amended by inserting at the end thereof the following:~~

~~"(c) The Director of the Naval Nuclear Propulsion Program may from time to time provide assistance and advice to the Board.".~~

~~ASSISTANCE BY THE NATIONAL ACADEMY OF SCIENCES~~

~~SEC. 105. (a) In order to assist the Board in conducting the first annual review, the National Academy of Sciences or some other independent group or organization of experts chosen by the Board shall evaluate and interpret the differ-~~

~~ences between Nuclear Regulatory Commission regulations and Department of Energy Orders governing nuclear facilities, including but not limited to the implications for safety.~~

~~(b) There are hereby authorized to be appropriated such sums as are necessary to carry out the provisions of subsection (a).~~

## ~~TITLE II—APPLICATION OF OSHA AND NIOSH TO DOE NUCLEAR FACILITIES~~

### ~~FINDINGS AND PURPOSE~~

~~SEC. 201. (a) Congress finds that—~~

~~(1) worker health and safety at Department of Energy nuclear facilities could be made substantially safer by applying the standards developed by experts in the field of occupational health and safety;~~

~~(2) the Secretary of Labor has a longstanding responsibility for the health and safety of workers (including the enforcement of occupational health and safety standards and other protective labor standard programs) and could provide substantial assistance in creating and enforcing the standards; and~~

~~(3) the Secretary of Health and Human Services has a continuing responsibility for evaluating health needs related to radiation and toxic substances standards and could provide substantial assistance in creating and enforcing the standards.~~

~~(b) The purpose of this title is to provide and enforce better standards for employee health and safety at Department of Energy nuclear facilities.~~

### ~~APPLICATION OF OSHA TO DOE NUCLEAR FACILITIES~~

~~SEC. 202. (a) Paragraph (1) of section 4(b) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653(b)(1)) is amended to read as follows:~~

~~"(1)(A) Notwithstanding any other provision of this Act, this Act shall apply with respect to employment performed in—~~

~~"(i) a production facility or utilization facility (as defined in section 11 of the Atomic Energy Act of 1954 (42 U.S.C. 2014)) under the control or jurisdiction of the Secretary of Energy;~~

~~"(ii) a facility subject to such Act (42 U.S.C. 2011 et seq.) under the control or jurisdiction of the Secretary; and~~

~~"(iii) a waste storage facility under the control of or jurisdiction of the Secretary.~~

~~"(B) This subsection shall not apply to a facility or activity covered under section 309 of the Department of Energy Organization Act (42 U.S.C. 7158).".~~

~~(b)(1) All regulations and standards relating to occupational health and safety applicable to nuclear facilities described in section 4(b)(1) of the Occupational Safety and Health Act of 1970 (as amended by subsection (a)) that are in~~

~~effect on the date of enactment of this Act shall remain in effect until superseded by regulations and standards promulgated by the Secretary of Labor in accordance with paragraph (2).~~

~~(2) After consultation with the Secretary of Energy and employee representatives, the Secretary of Labor shall promulgate regulations to govern the application of such Act to such facilities. The regulations shall include—~~

~~(A) the occupational health and safety standards to be applied to such facilities, subject to paragraph (3); and~~

~~(B) the manner and process for enforcement of the standards, which shall include provisions for—~~

~~(i) the safeguarding of information, consistent with the needs of employees of the Occupational Safety and Health Administration;~~

~~(ii) mechanisms and processes for enforcement, including the right of entry for unannounced inspections without probable cause;~~

~~(iii) receipt of complaints from individuals and protection of the individuals from retribution for making the complaints; and~~

~~(iv) such other regulations as are necessary to carry out this title and the amendments made by this title.~~

~~PERFORMANCE OF NIOSH FUNCTIONS AT DOE NUCLEAR FACILITIES~~

~~SEC. 203. Section 22 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 671) is amended by adding at the end thereof the following new subsection:~~

~~"(g) Notwithstanding any other provision of this Act, the Director and the Institute shall perform functions authorized by this Act at nuclear facilities described in section 4(b)(1).".~~

~~COOPERATION WITH INSPECTIONS AND INVESTIGATIONS~~

~~SEC. 203. Section 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 657) is amended by adding at the end thereof the following new subsection:~~

~~"(h)(1) Except as provided in paragraph (2), the Secretary of Energy and each contractor operating a nuclear facility described in section 4(b)(1) shall—~~

~~"(A) cooperate with the Secretary of Labor and the Secretary of Health and Human Services in the conduct of an inspection or investigation under this Act at such facility;~~

~~"(B) grant access to such facility to enable the conduct of such inspection or investigation; and~~

~~"(C) provide all information that is necessary to conduct such inspection or investigation.~~

~~"(2) To protect the confidentiality of information, the Secretary of Energy may deny access to any person who—~~

~~"(A) has not been granted a security clearance or access authorization by the Secretary; or~~

~~"(B) does not require such access in connection with the duties of such person to enforce this Act.".~~

## ~~TITLE III—MIXED HAZARDOUS WASTE~~

### ~~SHORT TITLE~~

~~SEC. 301. This title may be cited as the "Mixed Hazardous Waste Amendment Act of 1987".~~

### ~~FINDINGS~~

~~SEC. 302. The Congress finds that—~~

~~(1) the generation, transportation, treatment, storage, and disposal of solid waste mixed with radioactive material poses potential hazards to public health, safety, and environment unless carefully planned and managed;~~

~~(2) the Department of Energy's facilities are actual or potential producers of such solid waste mixed with radioactive material; and~~

~~(3) the authority of the Environmental Protection Agency and authorized States to regulate the disposal of solid waste mixed with radioactive material at the Department of Energy's facilities should be clarified.~~

### ~~PURPOSE~~

~~SEC. 303. The purpose of this title is to clarify the intent of Congress that the generation, transportation, treatment, storage, and disposal of solid waste mixed with radio-~~

~~active material at Department of Energy facilities, including facilities not licensed for the disposal of radioactive materials is subject to the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.).~~

### ~~CLARIFYING AMENDMENT TO DEFINITION OF SOLID WASTE~~

~~SEC. 304. Section 1004(27) (42 U.S.C. 6903(27)) of the Solid Waste Disposal Act is amended—~~

~~(1) by inserting "(A)" after "(27)";~~

~~(2) by striking out ", or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923)"; and~~

~~(3) by adding at the end thereof the following new subparagraph:~~

~~"(B) The term 'solid waste' does not include—~~

~~"(i) source, special nuclear, or byproduct materials as defined in section 11 of the Atomic Energy Act of 1954 (42 U.S.C. 2014), unless such materials are a part of any mixture or combination, if the other constituent part of such mixture or combination is a solid waste, within the meaning of subparagraph (A); or~~

~~"(ii) wastes at the time they are emplaced at a repository, as defined in section 2(18) of the Nuclear Waste Policy Act of 1982 (42 U.S.C. 10101(18)).".~~

### ~~APPLICABILITY OF AMENDMENTS~~

~~SEC. 305. This title and the amendments made thereby—~~

~~(1) are clarifying in nature with respect to the purpose stated in section 303; and~~

~~(2) shall not be construed as—~~

~~(A) altering the intent of Congress that the Solid Waste Disposal Act, as in effect prior to the amendments made by this title, applies to mixtures and combinations of solid wastes which contain radioactive material from the commercial nuclear industry; or~~

~~(B) affecting, modifying, or amending the Uranium Mill Tailings Radiation Control Act of 1978.~~

## ~~TITLE IV—RADIATION STUDY ADVISORY BOARD ACT OF 1987~~

### ~~SHORT TITLE~~

~~SEC. 401. This title may be cited as the "Radiation Study Advisory Board Act of 1987".~~

### ~~FINDINGS~~

~~SEC. 402. The Congress makes the following findings:~~

~~(1) After many years of study there remain unresolved questions about the health effects of radiation exposure from many sources, such as nuclear weapons~~

~~manufacturing and testing, nuclear reactors, radioactive wastes, and the medical uses of nuclear materials.~~

~~(2) The epidemiology of radiation-caused injury and disease, including cancer, birth defects, and genetic damage, must be further examined and better understood.~~

~~(3) Public health authorities must be able to direct research efforts on the health effects of radiation so that effective means of protecting the public against dangerous exposure to radiation can be developed and achieved.~~

~~(4) The Secretary of Energy is primarily responsible for the production of nuclear materials and nuclear weapons. In addition, the Secretary is required to study the health impact of activities of the Department of Energy. These dual responsibilities have the potential to create public concern as to the integrity and value of the health studies conducted by the Secretary.~~

### ~~ADVISORY BOARD~~

~~SEC. 403. (a)(1) To advise and assist the Secretary of Energy in conducting epidemiological studies of the effects of radiation under section 103 of the Energy Reorganization Act of 1974 (42 U.S.C. 5813), and any other law, the Secretary of Health and Human Services shall establish an advisory board known as the Radiation Research Review Board (hereafter referred to as the "Board").~~

~~(2)(A) The Board shall consist of 8 members appointed by the Secretary of Health and Human Services, 1 member appointed by the Secretary of Energy, and 2 members appointed by the Secretary of Labor. The Secretary of Health and Human Services shall make appointments to the Board so that the membership of the Board includes individuals who are expert in epidemiological studies of the health effects of radiation, and public health officials who are concerned with such health effects.~~

~~(B) The Secretary of Health and Human Services shall consult with the Director of the Centers of Disease Control, the Director of the National Cancer Institute, the Director of the Center for Devices and Radiological Health, and others in formulating the membership of the Board.~~

~~(b)(1) Prior to any authorization or expenditure of funds in an amount greater than $100,000 by the Secretary of Energy for epidemiological studies of the health effects of radiation, the Secretary of Energy shall provide the Board with all requests for proposals concerning such studies.~~

~~(2) The Board shall review the proposals provided under paragraph (1) and promptly make appropriate recommendations to the Secretary of Energy in writing if the Board believes the proposal should be modified or not funded.~~

~~(3) The Secretary of Energy shall—~~

~~(A) implement the recommendations of the Board submitted pursuant to paragraph (2) prior to authorization or expenditure of any funds; or~~

~~(B) inform the Secretary of Health and Human Services and the Congress of his intention not to implement the Board's recommendation, specifying in detail the reasons for this decision.~~

~~(4) The Board shall annually review the studies conducted pursuant to this title, and advise the Secretary of Energy as to the suggested scope and direction of future studies needed.~~

~~(5) The Secretary of Energy, with the assistance of the Board, shall—~~

~~(A) insure that all studies undertaken under this title shall be subject to peer review; and~~

~~(B) promulgate guidelines for the provision of data from such studies to qualified researchers who are not associated with the Department of Energy in order to implement subparagraph (A).~~

~~(c) The Secretary of Health and Human Services shall provide such funds, facilities, and staff as are necessary for the Board.~~

*SHORT TITLE*

*SECTION 1. That this Act may be cited as the "Nuclear Protections and Safety Act of 1987".*

## *TITLE I—INDEPENDENT NUCLEAR SAFETY BOARD OVERSIGHT OVER DEPARTMENT OF ENERGY FACILITIES*

### *SHORT TITLE*

*SEC. 101. This title may be cited as the "Department of Energy Nuclear Safety Board Oversight Act of 1987".*

### *FINDINGS AND PURPOSE*

*SEC. 102. (a) The Congress finds that—*

*(1) there is a great need for independent investigation of events at nuclear facilities controlled by the Department of Energy; and*

*(2) continual review and assessment by expert outside authorities would be of assistance in identifying actual or potential safety problems, research requirements, and needed standards at these nuclear facilities.*

*(b) The purpose of this title is to establish an Independent Department of Energy Nuclear Safety Board which shall promote nuclear safety at Department of Energy nuclear facilities by—*

*(1) reviewing and evaluating the implementation of health and safety standards, as well as all applicable Department of Energy Orders at each nuclear facility;*

*(2) conducting independent investigations of events at Department of Energy nuclear facilities;*

*(3) reviewing and assessing the content and application of all Orders governing Department of Energy nuclear facilities;*

*(4) recommending to the Department of Energy improvements in its nuclear facilities, operations, and health and safety standards, including suggestions for areas of needed research; and*

*(5) informing the Congress of its findings and recommendations.*

*ESTABLISHMENT OF NUCLEAR SAFETY BOARD*

*SEC. 103. Title II of the Energy Reorganization Act of 1974 (42 U.S.C. 5841 et seq.) is amended by adding at the end thereof the following new section:*

*"INDEPENDENT NUCLEAR SAFETY BOARD*

*"SEC. 212. (a) There is established a Department of Energy Nuclear Safety Board (hereafter in this section referred to as the 'Board').*

*"(b)(1) The Board shall be composed of 3 members appointed by the President, by and with the advice and consent of the Senate, from among respected experts in the field of nuclear safety with a demonstrated competence and knowledge relevant to the independent investigative and prescriptive functions of the Board. No more than 2 members of the Board shall be of the same political party. Not later than 90 days after the date of the enactment of this section, the Presi-*

*dent shall submit such nominations for appointment to the Board.*

*"(2) Any vacancy in the membership of the Board shall be filled in the same manner in which the original appointment was made.*

*"(3) During their tenure on the Board, no member of the Board shall have any significant financial relationship with the Department of Energy or with any firm, company, corporation, or other entity engaged in activities under contract with the Department of Energy.*

*"(c)(1) The Chairman and Vice Chairman of the Board shall be designated by the President. The Chairman and Vice Chairman and other Board members may be reappointed to such offices.*

*"(2) The Chairman shall be the chief executive officer of the Board and shall, subject to such policies as the Board may establish, exercise the functions of the Board with respect to—*

*"(A) the appointment and supervision of personnel employed by the Board;*

*"(B) the organization of any administrative units established by the Board; and*

*"(C) the use and expenditure of funds.*

*The Chairman may delegate any of the functions under this paragraph to any other member or to any appropriate employee or officer of the Board.*

*"(3) The Vice Chairman shall act as Chairman in the event of the absence or incapacity of the Chairman or in case of a vacancy in the office of Chairman.*

*"(d)(1) Except as provided under paragraph (2), the members of the Board shall serve for terms of 6 years. Members of the Board may be reappointed.*

*"(2) Of the members first appointed—*

*"(A) one shall be appointed for a term of 2 years;*

*"(B) one shall be appointed for a term of 4 years; and*

*"(C) one shall be appointed for a term of 6 years,*

*as designated by the President at the time of appointment.*

*"(3) Any member appointed to fill a vacancy occurring before the expiration of the term of office for which such member's predecessor was appointed shall be appointed only for the remainder of such term. A member may serve after the expiration of the member's term until a successor has taken office.*

*"(4) Any member of the Board may be removed by the President for inefficiency, neglect of duty, or malfeasance in office.*

*"(e) Two members of the Board shall constitute a quorum for issuing reports, but a lesser number may hold hearings.*

*"(f) The Board shall hire such staff and make such expenditures for consultants and services as are necessary. Staff for the Board may not exceed 100 full-time equivalent staff personnel.*

*"(g) The Board shall have the following functions:*

*"(1)(A) The Board shall review and evaluate the implementation of the health and safety standards of the Department of Energy, including all applicable Department of Energy Orders, at each Department of Energy nuclear facility. The Board shall review and assess the content and application of all Orders governing Department of Energy nuclear facilities, recommend necessary changes in the content and application of such Orders, and recommend areas needing additional research.*

*"(B) The Secretary shall—*

*"(i) respond to the recommendations made by the Board pursuant to subparagraph (A); and*

*"(ii) notify the Board and Congress as to which recommendation will be implemented and which will not be implemented and shall include*

*in such notification the reasons for not implementing such recommendations.*

*"(2)(A)(i) The Board shall investigate any event at a Department of Energy nuclear facility which the Board determines to be important because of an actual or potential adverse effect on the health or safety of the public.*

*"(ii) The Board shall investigate those aspects of the transportation of nuclear materials to and from Department of Energy nuclear facilities which the Board determines to be significant because of possible adverse effects on the health and safety of the public.*

*"(iii) The Board may request the Secretary of Energy (hereafter in this section referred to as the 'Secretary') to make an investigation of any subject related to the Board's purposes, including any matter described in subdivision (i) or (ii), and to report its findings to the Board in a timely fashion. The Board may analyze the findings of the Secretary for the purpose of making its own conclusions and recommendations.*

*"(B) The purpose of any Board investigation under subparagraph (A)(i) shall be—*

*"(i) to determine if the Secretary is adequately implementing the health and safety standards of the Department of Energy, including all*

*applicable Department of Energy Orders, at Department of Energy nuclear facilities;*

*"(ii) to ascertain information concerning the circumstances of any event, and its implications for the public health and safety;*

*"(iii) to determine whether such event is part of a pattern of similar events at other Department of Energy nuclear facilities which could adversely affect the public health or safety or which could be the precursor of events which could adversely affect the public health or safety; and*

*"(iv) to provide such recommendations to the Secretary for changes in Department of Energy Orders, safety regulations and requirements, including research needs, and other regulatory policy as may be prudent or necessary.*

*"(C) The purpose of any Board investigation under subparagraph (A)(ii) shall be to review—*

*"(i) the transportation packages used to contain nuclear materials in transit;*

*"(ii) the adequacy of design standards for packages, and testing of the packages;*

*"(iii) the safety of rail routes and highway routes chosen;*

*"(iv) the availability of safer routes around high-density population centers; and*

*"(v) the ability of public safety officials to respond to an emergency.*

*"(D) For the purpose of this paragraph, the term 'event' shall include an action or failure to act by any person, including the Secretary, or a continuing series of actions or failures to act by any person, including the Secretary, including operational failures, that the Board determines to have an actual or potentially adverse effect on public health and safety.*

*"(3) The Board shall have access to and may systematically analyze operational data from any Department of Energy nuclear facility to determine whether there exist certain patterns of events that indicate health and safety problems.*

*"(4) The Board may conduct or request the Secretary to conduct special studies pertaining to safety at any Department of Energy nuclear facility.*

*"(5) The Board may evaluate information received from the scientific and industrial communities, and from the interested public, with respect to—*

*"(A) events with actual or potential adverse effects on health and safety; or*

*"(B) suggestions for specific measures to improve health and safety standards or necessary research at Department of Energy nuclear facilities.*

*"(6)(A) The Board shall recommend to the Secretary those specific measures that should be adopted to substantially reduce the likelihood that events will occur at any Department of Energy nuclear facility. In making its recommendations, the Board shall consider technical and economic feasibility. The Secretary shall respond in writing to the recommendations of the Board within 90 days of receipt of such recommendations. Such written response shall detail specific measures adopted by the Secretary in response to such recommendations.*

*"(B) The recommendations of the Board made pursuant to subparagraph (A) shall also be sent to Congress, and, when possible, an unclassified version shall be made available to the public.*

*"(7)(A) The Board may establish reporting requirements which shall be binding upon the Secretary.*

*"(B) The information which the Board may require to be reported under this paragraph may include any materials designated as classified material pursuant to the Atomic Energy Act of 1954, or any materials designated as safeguards information and protected*

*from disclosure under section 147 of the Atomic Energy Act of 1954.*

*"(C) Notwithstanding any other provision of law, the Secretary and all contractors operating Department of Energy nuclear facilities shall fully cooperate with the Board and provide ready access to such facilities, personnel, and all information necessary to carry out the functions of the Board.*

*"(D) In order to protect information, the Secretary may deny access to information provided to the Board to any person who—*

*"(i) has not been granted an appropriate security clearance or access authorization by the Secretary of Energy; or*

*"(ii) does not need such access in connection with the duties of such person to enforce this paragraph.*

*"(8) The Board shall issue periodic unclassified public reports. These reports may include recommendations of specific measures to reduce the likelihood of occurrence of nuclear events and of corrective steps to enhance or improve safety conditions at Department of Energy nuclear facilities.*

*"(9) Prior to the construction of any new Department of Energy nuclear facility, the Board shall be*

*consulted and pursuant to this Act make such recommendations as are necessary to ensure that the design and construction of such facilities conforms to design, construction, and health and safety standards that would be imposed upon a comparable private sector facility.*

*"(h)(1) Not later than 1 year after the receipt of recommendations issued by the Board pursuant to subsection (g)(6), the Secretary shall implement each recommendation of the Board with respect to each operating Department of Energy nuclear facility covered by the report unless the Secretary notifies the Board and the Congress (and includes specific facts and findings in support) that—*

*"(A) the recommendation cannot be implemented because it is technically or economically infeasible;*

*"(B) the Secretary agrees with the recommendation but appropriated funds are not currently available for the implementation; or*

*"(C) the President specifically exempts the facility from implementing the recommendations by determining it is in the paramount national security interest of the United States to provide such an exemption.*

*"(2)(A) Any exemption granted under paragraph (1)(C) shall be for a period not in excess of 1 year, but additional 1 year exemptions may be granted upon the President's*

*making a new determination. The President shall report each January to the Congress regarding any exemption granted from the Board's recommendations during the preceding calendar year, together with specific facts and findings in support of granting each such exemption.*

*"(B)(i) If the reason for not implementing the recommendation under paragraph (1) is based, in whole or in part, on subparagraph (A) of such paragraph, the Secretary shall report his decision and basis for not implementing each of the Board's recommendations to the Congress and the President. Within 60 days of the Secretary's report, the President shall—*

*"(I) overrule the Secretary's decision and direct the Secretary to implement the Board's recommendations, or*

*"(II) certify in a report to the Congress the President's affirmation of the Secretary's decision not to implement the Board's recommendations, and include in such certification the specific facts and findings in support of that affirmation.*

*(ii) If the reason for not implementing the recommendation under paragraph (1) is based, in whole or in part, upon subparagraph (B) of such paragraph, the facility shall be closed unless the President specifically requests the necessary appropriated funds to implement the recommendation.*

*"(i)(1) The Board or, on the authorization of the Board, any member thereof, may, for the purpose of carrying out the provisions of this section, hold such hearings and sit and act at such times and places, and require, by subpena or otherwise, the attendance and testimony of such witnesses and the production of such evidence as the Board or an authorized member may find advisable.*

*"(2)(A) Subpenas may be issued only under the signature of the Chairman or any member of the Board designated by him and shall be served by any person designated by the Chairman or any member. The attendance of witnesses and the production of evidence may be required from any place in the United States at any designated place of hearing in the United States.*

*"(B) Any member of the Board may administer oaths or affirmations to witnesses appearing before the Board.*

*"(C) Any person who willfully neglects or refuses to qualify as a witness, or to testify, or to produce any evidence in obedience to any subpena duly issued under the authority of this paragraph shall be fined not more than $500, or imprisoned for not more than 6 months, or both. Upon certification by the Chairman of the Board of the facts concerning any willful disobedience by any person to the United States Attorney for any judicial district in which the person resides*

*or is found, the United States Attorney may proceed by information for the prosecution of the person for the offense.*

*"(j) For purposes of this section, the term 'Department of Energy nuclear facility' means—*

*"(1) a production facility or utilization facility (as defined in section 11 of the Atomic Energy Act of 1954 (42 U.S.C. 2014)) under the control or jurisdiction of the Secretary of Energy;*

*"(2) a facility subject to such Act (42 U.S.C. 2011 et seq.) under the control or jurisdiction of the Secretary; and*

*"(3) a waste storage facility under the control of jurisdiction of the Secretary, other than a facility developed pursuant to the Nuclear Waste Policy Act of 1982 (42 U.S.C. 10101 et seq.) and licensed by the Nuclear Regulatory Commission.*

*The term does not include facilities or activities covered under Executive Order 12344 (42 U.S.C. 7158, note).*

*"(k) The Board shall cease to exist, and the requirements of this section shall terminate, upon the expiration of the 6-year period beginning on the date of the enactment of this section, unless reenacted at the end of that period.*

*"(l) There are hereby authorized to be appropriated for each of the fiscal years 1988, 1989, 1990, 1991, 1992, and 1993 the sum of $5,000,000.*

*"(m) Five years after the date of enactment of the Nuclear Protections and Safety Act of 1987, the Board shall submit to the Congress a report that shall include—*

*"(1) an assessment of the degree to which the overall administration of the Board's activities are believed to meet the objectives of the Congress in establishing the Board;*

*"(2) recommendations for continuation, termination, or modification of the Board's functions and programs, including recommendations for transition to some other independent oversight arrangement if it is advisable; and*

*"(3) recommendations for appropriate transitional requirements in the event that modifications are recommended.".*

*ASSISTANCE BY OTHER AGENCIES*

*SEC. 104. (a) Section 29 of the Atomic Energy Act of 1954 (42 U.S.C. 2039) is amended by—*

*(1) inserting "a." before "There is hereby established"; and*

*(2) adding at the end thereof the following new subsection:*

*"b. (1) The Advisory Committee on Reactor Safeguards shall provide assistance as requested by the Independent Nuclear Safety Board (as established in section 212 of the Energy Reorganization Act of 1974).*

*"(2) To assist the Board, the Advisory Committee on Reactor Safeguards is authorized to expand its membership by up to 5 additional members and corresponding staff to assist the Independent Nuclear Safety Board.*

*"(3) The Secretary of Energy shall fully reimburse the Advisory Committee on Reactor Safeguards for all reasonable costs incurred in assisting the Board for activities conducted pursuant to this subsection, including the expense of salary and staff in paragraph (2).".*

*(b) Section 309 of the Department of Energy Organization Act (Public Law 95–91; 42 U.S.C. 7158) is amended by inserting at the end thereof the following:*

*"(c) The Director of the Naval Nuclear Propulsion Program may from time to time provide assistance and advice to the Board.".*

*ASSISTANCE BY THE NATIONAL ACADEMY OF SCIENCES*

*SEC. 105. (a) In order to assist the Board, the National Research Council of the National Academy of Sciences or some other independent group or organization of experts chosen by the Board shall evaluate and interpret the differences between Nuclear Regulatory Commission regulations and Department of Energy Orders governing nuclear facilities, including the implications for public health and safety. The study should result in specific recommendations to the Board for the adoption of new or amended standards at the Department of Energy.*

*(b) There are hereby authorized to be appropriated such sums as are necessary to carry out the provisions of subsection (a).*

### *SALARY LEVEL FOR BOARD MEMBERS*

*SEC. 106. Section 5314 of title 5, United States Code, is amended by inserting "Members, Department of Energy Nuclear Safety Board" after "Members, Nuclear Regulatory Commission".*

## *TITLE II—APPLICATION OF OSHA AND NIOSH TO DOE NUCLEAR FACILITIES*

### *FINDINGS AND PURPOSE*

*SEC. 201. (a) Congress finds that—*

*(1) worker health and safety at Department of Energy nuclear facilities could be made substantially safer by applying the standards developed by experts in the field of occupational health and safety;*

*(2) the Secretary of Labor has a longstanding responsibility for the health and safety of workers (including the enforcement of occupational health and safety standards and other protective labor standard programs) and could provide substantial assistance in developing, improving, and enforcing the standards at Department of Energy nuclear facilities; and*

*(3) the Secretary of Health and Human Services has a continuing responsibility for evaluating health and safety needs related to radiation and toxic sub-*

*stances standards and could provide substantial assistance in improving and enforcing the standards at Department of Energy nuclear facilities.*

*(b) The purpose of this title is to improve and enforce standards for employee health and safety at Department of Energy nuclear facilities.*

### *APPLICATION OF OSHA TO DOE NUCLEAR FACILITIES*

*SEC. 202. (a) Section 4(b)(1) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653(b)(1)) is amended—*

*(1) by striking out "Nothing" and inserting in lieu thereof "(A) Except as provided in subparagraph (B), nothing"; and*

*(2) by adding at the end thereof the following new subparagraph:*

*"(B)(i) Notwithstanding any other provision of this Act, this Act shall apply with respect to employment performed in—*

*"(I) a production facility or utilization facility (as defined in section 11 of the Atomic Energy Act of 1954 (42 U.S.C. 2014)) under the control or jurisdiction of the Secretary of Energy;*

*"(II) a facility subject to such Act (42 U.S.C. 2011 et seq.) under the control or jurisdiction of the Secretary of Energy; and*

*"(III) a waste storage facility under the control of or jurisdiction of the Secretary of Energy.*

*"(ii) This subparagraph shall not apply to a facility or activity covered under Executive Order 12344 (42 U.S.C. 7158 note).".*

*(b)(1) All regulations and standards relating to occupational health and safety applicable to Department of Energy nuclear facilities described in section 4(b)(1)(B)(i) of the Occupational Safety and Health Act of 1970 (as amended by subsection (a)) that are in effect on the date of enactment of this Act shall remain in effect until superseded by regulations and standards promulgated by the Secretary of Labor in accordance with paragraph (2).*

*(2) The Secretary of Labor shall promulgate specific regulations to govern the application of such Act to such Department of Energy nuclear facilities. The regulations shall include—*

*(A) the occupational health and safety standards to be applied to such facilities; and*

*(B) the manner and process for enforcement of the standards, which shall include provisions for—*

*(i) the safeguarding of information, consistent with the needs of employees of the Occupational Safety and Health Administration;*

*(ii) mechanisms and processes for enforcement, including the right of entry for unannounced inspections without probable cause;*

*(iii) receipt of complaints from individuals and protection of the individuals from retribution for making the complaints;*

*(iv) procedures for inspection at such facilities not less than once each year; and*

*(v) such other regulations as are necessary to carry out this title and the amendments made by this title.*

### *PERFORMANCE OF NIOSH FUNCTIONS AT DOE NUCLEAR FACILITIES*

*SEC. 203. Section 22 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 671) is amended by adding at the end thereof the following new subsection:*

*"(g)(1) Notwithstanding any other provision of this Act, the Director and the Institute shall perform functions authorized by this Act at Department of Energy nuclear facilities described in section 4(b)(1)(B)(i).*

*"(2) The Institute shall conduct hazard evaluations at such facilities, including ionizing radiation evaluations.".*

### *COOPERATION WITH INSPECTIONS AND INVESTIGATIONS*

*SEC. 204. Section 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 657) is amended by adding at the end thereof the following new subsection:*

*"(h)(1) Except as provided in paragraph (2), the Secretary of Energy and each contractor operating a nuclear facility described in section 4(b)(1) shall—*

*"(A) cooperate with the Secretary of Labor and the Secretary of Health and Human Services in the conduct of an inspection or investigation under this Act at such facility;*

*"(B) grant access to such facility to enable the conduct of such inspection or investigation; and*

*"(C) provide all information that is necessary to conduct such inspection or investigation.*

*"(2) To protect the confidentiality of information, the Secretary of Energy may deny access to any person who—*

*"(A) has not been granted a security clearance or access authorization by the Secretary; or*

*"(B) does not require such access in connection with the duties of such person to enforce this Act.".*

## *TITLE III—MIXED HAZARDOUS WASTE*

### *SHORT TITLE*

*SEC. 301. This title may be cited as the "Mixed Hazardous Waste Amendment Act of 1987".*

### *FINDINGS*

*SEC. 302. The Congress finds that—*

*(1) the generation, transportation, treatment, storage, and disposal of solid waste mixed with radioactive material poses potential hazards to public health,*

*safety, and environment unless carefully planned and managed;*

*(2) the Department of Energy's facilities are actual or potential producers of such solid waste mixed with radioactive material; and*

*(3) the authority of the Environmental Protection Agency and authorized States to regulate the disposal of solid waste mixed with radioactive material at the Department of Energy's facilities should be clarified.*

### *PURPOSE*

*SEC. 303. The purpose of this title is to clarify the intent of Congress that the generation, transportation, treatment, storage, and disposal of solid waste mixed with radioactive material at Department of Energy facilities, including facilities not licensed for the disposal of radioactive materials is subject to the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.), in addition to existing authority under the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.).*

### *CLARIFYING AMENDMENT TO DEFINITION OF SOLID WASTE*

*SEC. 304. Section 1004(27) (42 U.S.C. 6903(27)) of the Solid Waste Disposal Act is amended—*

*(1) by inserting "(A)" after "(27)";*

*(2) by striking out ", or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923)"; and*

*(3) by adding at the end thereof the following new subparagraph:*

*"(B) The term 'solid waste' does not include—*

*"(i) source, special nuclear, or by-product materials as defined in section 11 of the Atomic Energy Act of 1954 (42 U.S.C. 2014), unless such materials are a part of any mixture or combination, if the other constituent part of such mixture or combination is a solid waste, within the meaning of subparagraph (A); or*

*"(ii) wastes at the time they are emplaced at a repository, as defined in section 2(18) of the Nuclear Waste Policy Act of 1982 (42 U.S.C. 10101(18)).".*

*APPLICABILITY OF AMENDMENTS*

*SEC. 305. This title and the amendments made thereby—*

*(1) are clarifying in nature with respect to the purpose stated in section 303; and*

*(2) shall not be construed as—*

*(A) altering existing Department of Energy authority to regulate source, special nuclear, or by-product materials when in a mixture or combination with a solid waste;*

*(B) altering the intent of Congress that the Solid Waste Disposal Act, as in effect prior to the*

*amendments made by this title, applies to mixtures and combinations of solid wastes which contain radioactive material from the commercial nuclear industry; or*

*(C) affecting, modifying, or amending the Uranium Mill Tailings Radiation Control Act of 1978.*

## *TITLE IV—RADIATION STUDY ADVISORY BOARD ACT OF 1987*

### *SHORT TITLE*

*SEC. 401. This title may be cited as the "Radiation Study Advisory Board Act of 1987".*

### *FINDINGS*

*SEC. 402. The Congress makes the following findings:*

*(1) After many years of study there remain unresolved questions about the health effects of radiation exposure from many sources, including nuclear weapons manufacturing and testing, nuclear reactors, radioactive wastes, and the medical uses of nuclear materials.*

*(2) Radiation-caused injury and disease, including cancer, birth defects, and genetic damage, must be further examined and better understood.*

*(3) Public health authorities must be able to direct research efforts on the health effects of radiation so that effective means of protecting the public against*

*dangerous exposure to radiation can be developed and achieved.*

*(4) The Secretary of Energy is primarily responsible for the production of nuclear materials and nuclear weapons. In addition, the Secretary is required to study the health impact of activities of the Department of Energy. These dual responsibilities have the potential to create public concern as to the integrity and value of the health studies conducted by the Secretary of Energy.*

### *ADVISORY BOARD*

*SEC. 403. (a)(1) To advise and assist the Secretary of Energy in conducting studies of the effects of radiation under section 103 of the Energy Reorganization Act of 1974 (42 U.S.C. 5813), and any other law, the Secretary of Health and Human Services shall establish an advisory board known as the Radiation Research Board (hereafter referred to as the "Board").*

*(2)(A) The Board shall consist of 8 members appointed by the Secretary of Health and Human Services, 1 member appointed by the Secretary of Energy, and 2 members appointed by the Secretary of Labor. The Secretary of Health and Human Services shall make appointments to the Board so that the membership of the Board includes individuals who are expert in the health effects of radiation, epidemiology, or*

*toxicology, and public health officials who are concerned with such health effects.*

*(B) The Secretary of Health and Human Services shall consult with the Director of the Centers for Disease Control, the Director for the National Institute for Occupational Safety and Health, the Director of the National Cancer Institute, the Director of the Center for Devices and Radiological Health, the Director of the National Institute of Environmental Health Sciences, and others in formulating the membership of the Board.*

*(b)(1) Prior to any authorization or expenditure of funds in an amount greater than $250,000 by the Secretary of Energy for studies of the health effects of radiation, the Secretary of Energy shall provide the Board with all proposals concerning such studies.*

*(2) The Board shall review the proposals provided under paragraph (1) and make appropriate recommendations to the Secretary of Energy in writing if the Board believes the proposal should be modified or not funded.*

*(3) The Secretary of Energy shall periodically report to the Congress concerning the implementation of the recommendations of the Board. Such reports shall include specific reasons for each decision by the Secretary not to implement a recommendation made by the Board.*

*(4) The Board shall annually review the studies conducted pursuant to this title, and advise the Secretary of Energy as to the suggested scope and direction of future studies needed.*

*(5) The Secretary of Energy, with the assistance of the Board, shall—*

*(A) insure that all studies undertaken under this title shall be subject to peer review; and*

*(B) promulgate guidelines for the provision of data from such studies to qualified researchers who are not associated with the Department of Energy in order to implement subparagraph (A).*

*(c) The Secretary of Health and Human Services shall provide such funds, facilities, and staff as are necessary for the Board.*

Amend the title to read as follows: "A bill to create an independent oversight board to ensure the safety of Department of Energy nuclear facilities, to apply the provisions of OSHA to certain Department of Energy nuclear facilities, to clarify the jurisdiction and powers of Government agencies dealing with nuclear wastes, to ensure independent research on the effects of radiation on human beings, and for other purposes.".

## OPENING STATEMENT OF SENATOR J. JAMES EXON, CHAIRMAN

Senator EXON. Would the subcommittee please come to order, and we will move right along. Senator Glenn and I have been in another meeting this morning. This is a very important meeting as far as the subcommittee is concerned, and we will be hearing from Senator Glenn in just a few moments.

The purpose of the hearing is to address the longstanding concern of this committee that is brought about by the safety of the nuclear facilities managed by the Department of Energy. The aging and fragile nuclear weapons complex requires constant attention in order to preserve the production capability for various critical nuclear materials while maintaining an acceptable health and safety record.

In recent years, the Department of Energy's nuclear facilities have properly been the subject of increased scrutiny both internally through the creation of the Office of Environment, Safety and Health and by such outside reviews as the Roddis panel and the National Academy of Sciences.

The Department of Energy has a difficult mandate to fulfill in the nuclear area. It must maintain our Nation's ability to produce critical nuclear materials with the schedule set forth annually in the President's stockpile memorandum, yet it operates under the mounting constraint of aging facilities, limited budget and some political hostility to its primary mission.

DOE's reactors are among the oldest nuclear reactors in the country, some over 30 years old, and they require special attention. Some of DOE's other production facilities are approaching the end of their useful life. The design of DOE's older facilities reflects the technology of the era in which they were built, as is to be expected, although all have received extensive modernization and upgrading.

They require special attention to ensure that they can continue to be operated without undue risk to the health and safety of DOE employees and the public at large.

The legislation before us today, Title I of S. 1085, is intended to strengthen the existing oversight mechanisms that are vitally important to DOE national security facilities.

I support the general thrust of the legislation insofar as it attempts to add to the credibility of DOE's ability to handle health and safety problems. This is true clear across the board and especially at their defense facility.

Title I of S. 1085 raises a number of issues about the most appropriate means for improving the safety of DOE defense facility.

First, what is the proper scope of the safety concerns that should be addressed by this legislation? Does this legislation attempt to handle every problem that could be classified as health and safety concerns, or does it focus on the major incidents that could significantly affect the health and safety.

The second issue we must confront in attempting to improve safety oversight is the level of acceptable risk. While we would all like to live in a risk free world, we recognize that idea might be unrealistic.

I certainly want to say that the members of this subcommittee have looked into this matter in great, great detail. Our main concern above everything else is safety along with meeting the requirements of the national defense interest of the United States.

In all activities, we accept some level of risk; otherwise, we would be unwilling to drive to work. The issue is what level of risk are we willing to live with for a particular activity and the strongly related aspect of the cost of reducing that level of risk.

Reducing risk is never without cost. Reducing the risk of a catastrophe is fairly worth more than reducing the risk of an unpleasant accident or incident.

Third, we must consider whether the recommendations made by an independent oversight board with public visibility should be advisory or mandatory. Title I of S. 1085 focuses on the type of proper oversight structure. Should it tend toward a high profile advisory board or toward a regulatory regime? If the latter, what kind of exemptions or caveats are appropriate, given the national security mission of these facilities?

I hope that the discussion of these issues will allow us to judiciously weigh the benefits and consequences of safety oversight for the Department of Energy. Today's hearing is intended to consider the character and operation of the safety oversight mechanism of the measure.

Our first witness is the distinguished senior Senator from Ohio and chairman of the Governmental Affairs Committee, which reported S. 1085. The Senator from Ohio has an outstanding record in the area of safety oversight. Title I of S. 1085 clearly reflects the hard work that has gone into the bill, and we find much in it that is praiseworthy.

Our second witness, Mr. J. Dexter Peach, Assistant Comptroller General of the General Accounting Office, has directed numerous studies for Congress on DOE safety issues. We look forward to his testimony today as well.

Additional hearings will consider the national security implications of the legislation, and that is the key responsibility of this subcommittee.

We plan also to hear from the Department of Energy and from outside witnesses as soon as the committee schedule permits.

We are conducting this review of Title I of S. 1085 under a very constrained and restricted schedule. The Armed Services Committee is presently in the middle of a conference with the House on the fiscal year 1988-89 Defense authorization bill. This conference will likely continue during most of the time that this measure lies before the committee on sequential referral.

This severely strains the resources of the committee; however, given the importance of this matter, we are committed to working with you to strengthen the existing safety oversight mechanism of DOE's national security facility.

We will now hear from Senator Glenn unless there is some opening statement from my colleague from Maine.

Senator COHEN. Mr. Chairman, I do not have a long opening statement. I just want, number one, to commend you for holding the hearings and to commend Senator Glenn for being the leadoff witness.

I had the pleasure of serving with him on the Governmental Affairs Committee. I must tell you that he, over the years, has been a leader in the effort to try to gain control over the problem of nuclear power and the spread of nuclear weapons to other countries and his concern over the issue of nuclear safety.

From my perspective, I can tell you that I am concerned that some of our older plants that have serious safety deficiencies, and my fear is that if we have such an explosion or a disaster such as affected Chernobyl, you will see a shutdown of our nuclear production facilities in this country.

I might say that Maine has a referendum up in November in which they are going to pass judgment on whether to shut down the Maine Yankee facility in the State of Maine, which has a reasonably good safety record. Nonetheless, that is the mood of the people right now. I do not know whether it will pass or not, but certainly it is going to send a signal to other nuclear facilities in this country and those States that contain the facilities.

I think it is terribly important that we deal with the issue of nuclear production necessity and take into account how we balance those needs against the safety of our citizens.

So I want to commend Senator Glenn for bringing this legislation to us and hope that we can resolve this very difficult issue. I think the crux of the debate dealing with the independent advisory board or council, as such, is whether it is simply advisory or whether it has some real teeth in the legislation itself.

Thank you, Mr. Chairman.

Senator EXON. I thank the Senator from Maine for the information for everyone.

The Senator from Maine, the Senator from Ohio and this Senator just returned from a meeting with the House of Representatives on the Defense authorization bill. Right on point, we had a significant discussion this morning about what we are going to do, if anything, with the Hanford plant in Washington State.

There are differences between the House and the Senate and among individual members, but the message we are trying to drive home is what I think the Senator from Maine was referring to. We have problems ahead of us in meeting the minimum national defense needs, which I think is the first priority for all of us.

So with that, I am delighted to welcome and call upon my friend and colleague from Ohio, Senator Glenn.

Senator GLENN. Thank you very much, Mr. Chairman. I think your remarks and those of the Senator from Maine have very well set the stage for what we are talking about here today.

Before I start my remarks, I would agree with you completely. There is no easy answer. There is no perfect answer, and there is no risk-free world. What we have tried to do in the nuclear age on the civilian side is have regulations that would indeed make risks as minimal as possible.

What we are trying to address with this is to do the same thing on the other side of the ledger, on the military side, on the Department of Energy side, where nuclear weaponry is developed through a whole series of steps and to minimize those risks on the DOE side. This is what this is all about, because we think that has been neglected for far too long.

I particularly appreciate the remarks of the distinguished Senator from Maine, Senator Cohen. I have had the pleasure of working with him on the Governmental Affairs Committee. I know personally of his interest and great concern in this area of nuclear safety on that committee as well as on this committee, the Armed Services Committee. So it is a pleasure to hear his remarks this morning because I know of his long-term interest in this.

It is also a pleasure to have Mr. Peach here this morning, J. Dexter Peach of GAO, who has been responsible for most of the studies. We have some 21 different studies here that GAO has done through the years on various parts of this whole problem.

So that I do not forget this later on, I would ask that at the end of my remarks, also the remarks of Senator Roth be entered in the record, and we will provide a copy of those here.

Mr. Chairman, I am pleased to appear before you today to discuss S. 1085, the Nuclear Protections and Safety Act of 1987. The bill seeks to address actual and potential deficiencies in the management of safety and health issues at the Department of Energy nuclear production facilities.

I have been interested in this for a long time, but I had it pressed home to my attention back about 5 years ago when we had problems at Fernald, OH, where the nuclear production system starts for the Department of Energy. We had some real problems there which I will get into a little bit later.

Since that time, I have followed it very closely, and our concerns have gone not only to the Ohio plants but also to the plants all over the country, since we felt this was a growing national problem and one not limited just to one or two places within the Department of Energy complex all over the country.

With your indulgence, I will describe the background and provisions of Title I. The legislation is designed to improve the safety, health and environmental conditions at some 127 Government-owned nuclear facilities, employing over 142,000 people and located in 22 different States.

Evidence produced in four Governmental Affairs Committee hearings this year and confirmed in 21 reports that have been issued by the General Accounting Office indicate that serious deficiencies and a number of potentially dangerous situations have resulted from DOE's neglect of safety, health and environmental considerations.

The DOE has emphasized production over safety, and let me give you a few examples from the extensive record of the serious safety deficiencies at DOE nuclear plants.

DOE has been unsafely operating some of its facilities as a result of emphasizing production over safety and rewarding this behavior.

In 1985 at my request, the Governmental Affairs Subcommittee on Energy Nuclear Proliferation and Government Processes held a hearing in Cincinnati right next door to Fernald, about 15 miles away, that demonstrated that production and not safety was what counted at DOE's Feed Materials Production Center, FMPC, in Fernald, OH.

Between 1979 and 1985, in a period in which the production of nuclear weapons materials doubled, DOE stepped up production goals at Fernald by 288 percent. DOE made only minimal capital improvements to the facility and had so little concern for oversight that it did not even have an on-site manager at Fernald.

DOE's inattention to safety was so extreme that the release of some 275 pounds of uranium due to an air filtration malfunction continued undetected from mid-September to December 6, 1984. At the same time, DOE was giving award fees to the contractor for meeting production goals.

Let me address DOE's disregard for safety, health and environment. The 1985 hearing also demonstrated that DOE's negligence was historic as well as ongoing. DOE admitted that Fernald released 95,000 kilograms of uranium to the air and about 75,000 kilograms to the water over the 30-year course of its operations, to the detriment of both the employees and the surrounding community.

Calculations done by the EPA's Office of Radiation Program showed that between 1956 and 1969, the dose rate for a person living at the northeast boundary of FMPC would have experienced an average annual radiation of the lung equivalent to about 140 chest x-rays.

In the worst year, 1956, the dose rate at that boundary was equivalent to about 460 chest x-rays per year. For the general population, this dosage exceeds the EPA standard by over 12,000 percent or over 125 times the Government's set limit of exposure.

This past May, DOE revised its estimate upward, saying that the figure for releases of uranium to the air at Fernald was actually 136,000 kilograms, nearly 38 percent higher than the figure DOE gave at the 1985 hearing.

DOE's explanation for the larger figure is, and I quote, "some errors went undetected, and obscure archival data were not retrieved". Relevant data is not obscure to the workers and citizens affected by these radioactive discharges, and releases of this kind clearly are unacceptable.

Partly as a result of evidence presented at the 1985 hearing, DOE changed the contractor at Fernald, so we did get some movement. Things did start to improve somewhat. Unfortunately, their lack of attention to safety matters continues.

This past March, Ohio's Attorney General, Anthony Celebrase, testified at a Governmental Affairs Committee hearing that DOE had been using an abandoned well for radioactive waste from Fernald without having plugged the well before dumping in the radioactive waste water. The State of Ohio has cited this and other incidents in a lawsuit against DOE.

DOE's handling of reactor safety is just as alarming. The Department of Energy has reactors at Hanford in Washington State, at Oak Ridge in Tennessee and at Savannah River Plant in South Carolina. Serious problems exist with the reactors at all three sites.

The N reactor at Hanford has been placed on cold standby status. As the chairman mentioned, we just came from another meeting where this was being discussed as well as what we will do about it as part of the full committee this year.

The Armed Services Committee took the strong and commendable step of voting on May 8, 1987 to halt indefinitely reactor operations at Hanford. Since then, the Senate Appropriations Committee has also voted to place the N reactor in cold standby. I would like to commend this committee and particularly this subcommittee under the leadership of Chairman Exon for their actions and concerns for the safety of the DOE national security programs.

At Oak Ridge, TN, the Oak Ridge National Laboratory operates five reactors for DOE, and all five are currently shut down. The high flux isotope reactor, HFIR, has not been operating since 1986 because of an embrittlement problem. The remaining four reactors were placed in safe shutdown by DOE's Oak Ridge operations because of safety concerns over the management and oversight of reactor operations.

At Savannah River, the reactors that are operating run at reduced power levels. GAO testified at our March 12, 1987 Governmental Affairs Committee hearing that for nearly 7 years, from 1979 to 1986, DOE operated the nuclear reactors at its Savannah River Plant in South Carolina at 26 percent higher power level than the emergency core cooling system could handle. This was for 7 years.

The situation persisted unabated because an error was made in the analytical model used to calculate the power limits. As a result, the citizens of South Carolina were exposed to a significant potential danger during this 7-year period.

I would add, Mr. Chairman, that is right on the border of the nearest city, which is Augusta, GA, which our chairman might be interested in. It is only about 20 miles away from the center of the Savannah reservation to downtown Augusta where this was occurring.

Independently, the National Academies of Sciences and Engineering, under contract with DOE, has been reviewing the safety of DOE's largest reactors. In the course of its work, the National Academies' panel found that DOE's 26 percent power reductions, which were made in November and December 1986, might not be adequate to assure the safe operation of the reactors.

So on March 9, 1987, the National Academies strongly advised DOE to further reduce the power levels immediately. DOE did not make public the National Academies' recommendation even though the Department testified before the Governmental Affairs Committee on March 12 and 17 at two hearings on DOE nuclear facilities, one of which specifically addressed reactor safety.

I might add, Mr. Chairman, that the National Academies are an ad hoc consultant, of course. Their role is advisory only. As was mentioned earlier, that is one of the issues here which we wish to discuss. Their recommendation is ad hoc. It can be used or not used as the Department sees fit.

It was not until March 27, 1987 when the Governmental Affairs Committee independently became aware of the National Academies' letter to DOE that DOE reduced the power levels to the current level of 50 percent.

The DOE response on this issue is further evidence that DOE sorely needs independent outside oversight.

The GAO, which is conducting an ongoing investigation for me on safety conditions at DOE facilities, also testified at the Governmental Affairs Committee's March 12, 1987 hearing. GAO found that at Savannah River, "no effective management system exists to ensure timely clearance of action items related to reactor operations."

By the end of 1985, Savannah River had a backlog of 198 outstanding recommendations, some dating back to the late 1970s. One deals with possible inadequacies of the safety computer, which is the backup control system for the safe operation of the reactor.

In late 1986, a Du Pont reactor safety evaluation committee stated its concerns that the backlog "may indicate a trend toward a gradual deterioration of safety at DOE's South Carolina operation".

The GAO further found that "inexperienced personnel are maintaining the reactors without adequate training and, in some cases, without proper written procedures."

GAO also found that "the management inattention contributed to the operations and maintenance problems."

The concerns about the safety of the DOE nuclear complex, unfortunately, are systemic. Three high hazard facilities out of the eight that the GAO examined last year had incomplete or inadequate safety analysis reviews, SARs. The SARs are the tool for determining if a nuclear facility can operate safely without unacceptable risk.

These high hazard facilities have the potential for significant onsite or off-site releases of radioactive material and a major accident.

In addition, although DOE orders an independent review of SARs, the Department allows DOE's own field offices to carry out this function.

As Senator Exon mentioned in opening the hearing, DOE's nuclear complex is aging. The very newest DOE production reactor is now 24 years old. DOE is operating reactors at Savannah River built in the 1950s without knowing if the reactors are being operated beyond their life expectancies.

The use of old equipment increases the potential for hazard already created by DOE's inadequate safety processes. Cracks in Savannah River reactors, embrittlement and other concerns about the Oak Ridge reactors at Tennessee, and the problems with the N reactor in Hanford are a few of the many hazards of an aged production complex.

These factors add to the urgency of passing legislation to create an independent safety board for DOE nuclear facilities.

It is intolerable that safety and health of the employees who are on the front line of our national nuclear defense production are themselves potentially endangered because the safety of the Government-owned facilities may be compromised. We can produce nuclear materials to meet national security needs and provide safe working conditions and conditions of safety for the surrounding community.

In fact, assuring safety at these facilities is a necessary condition to ensuring that national defense production needs will be met; therefore, those of us concerned with national defense should welcome independent oversight of the DOE nuclear complex before an event occurs that puts employees and surrounding communities at risk.

Nothing could be more disruptive to fulfilling national security requirements than a serious nuclear accident at one of the production plants.

Now, I would like to discuss the functions of the independent safety board. Let me explain briefly how the independent safety board proposed in Title I of S. 1085 will be constituted, how much it will cost, what facilities it covers, what its functions are, and how its recommendations will be implemented.

The board will consist of three members who are appointed by the President with the advice and consent of the Senate. The members are required to be experts in the field of nuclear safety, and they will serve 6-year terms of office which will be staggered to ensure continuity.

They will be expected to sever any significant financial relationships with DOE and its contractors at the time they assume office.

The board can hire staff and consultants, but the staff is limited to 100 full-time equivalents.

Five million dollars annually is authorized for the board's first 6 years of operation, and the board will have oversight over all DOE nuclear production and utilization facilities except for naval nuclear reactors, which are governed by Executive Order 12344.

The board, Mr. Chairman, has six main functions.

First, it will ensure that DOE's current health and safety standards are being implemented.

Second, it will recommend changes in the content and application of DOE standards. The recommendations are advisory. They are not mandatory.

Third, it will investigate those events at DOE facilities which the board determines to be important because of their actual or potential adverse effect on the public's health or safety.

"Events" are defined to include actions or failures to act, including operational failures which the board determines have an actual or potentially adverse effect on public health and safety.

Fourth, the board will recommend specific measures designed to substantially reduce the likelihood of such events occurring. These recommendations must be administratively responded to in specific ways that I will address later.

Fifth, the board will issue periodic unclassified public reports with its recommendations as well as the decision to implement corrective steps at DOE facilities.

Finally, the board shall be consulted and make recommendations to ensure that the design, construction, health and safety standards of all new DOE facilities are appropriate and that these standards are commensurate with standards that are imposed on comparable private sector facilities.

I would stress some board recommendations are advisory; in fact, most of them. Others would require a specific response. The board's recommendations regarding DOE orders are advisory only. The DOE Secretary must notify the board and Congress as to which board recommendations will be implemented, and, if the Secretary's decision is to not implement the recommendations, to give the reasons for this decision.

In contrast, however, section 103(g)(6) of Title I establishes the right of the board to recommend specific measures designed to substantially reduce the likelihood that events could occur. These recommendations are considered so important that the Secretary of Energy is required to specifically respond within 90 days and implement the recommendation unless it falls within specified exception and exemption provisions.

Once a recommendation is made by the board pursuant to subsection (g)(6), the Secretary, or in certain instances the President, then has five options in responding to one of these very important recommendations.

First, the Secretary may choose to implement the board's recommendation, of course.

Second, the Secretary could choose to close a facility. If the board recommendation concerns only a single facility, the Secretary of Energy can indicate within 90 days his intention to close the facility and actually close the facility within 1 year of the day the recommendation was received.

Third, in those instances where a board recommendation would lead to the affected facility being closed or production dramatically reduced, the President could specifically exempt the facility from complying with the recommendation by determining that it is in the paramount national security interest of the United States to provide such an exemption.

Mr. Chairman, that is such an important provision in this legislation, I would like to read that over again and repeat it.

In those instances where a board recommendation would lead to the affected facility being closed or production dramatically reduced, the President could specifically exempt the facility from complying with the recommendation by determining that it is in the paramount national security interest of the United States to provide such an exemption.

Now, this provision is restricted solely to those instances where the security of the Nation will be severely threatened by closing the facility, not just for budgetary or technical exigencies.

The President is specifically required to renew annually this determination if the board's recommendation has not been implemented and the facility continues to operate. Any determination of the need to exempt a DOE nuclear facility from the board's recommendation should contain those facts and findings which support the exemption.

Fourth, the Secretary may wish to implement a recommendation but lacks the funds to accomplish it. In such instances, the Secretary should indicate his intention to implement the recommendation and follow up by complying with the provision which requires the facility to close unless the President specifically requests the necessary funds to implement the recommendation as part of the budget process within 12 months of the recommendation being issued.

Fifth, in those instances where the Secretary believes that the board's recommendations are technically or economically infeasible, the Secretary shall have the burden of obtaining a Presidential certification in support of the Secretary's initial decision not to implement the board's recommendation.

In making its recommendations, the board is asked to consider technical and economic feasibility. This standard does not require the board to make formal findings concerning economic or technical feasibility.

The burden of demonstrating that a board recommendation is not technically or economically feasible rests with the Secretary. If the Secretary disagrees with the board's recommendations on these grounds, the Secretary is required to report the disagreement with the board to Congress and the President along with the reasons for the Secretary's decision, a normal process.

Within 60 days of the Secretary's decision not to implement the board's recommendation, the President may overrule the Secretary's decision and require that the board's recommendations be implemented.

On the other hand, the President may choose to affirm the Secretary's decision not to implement the board's recommendation and supply the facts and findings which support this.

So even where the board and Secretary disagree, within 150 days a final decision would be reached on this issue. The final authority rests with the President. He can override anything the board does.

Now, I know that we need our nuclear production. I know that guaranteeing the ability of our Nation's defense capabilities is an issue of particular concern to the Subcommittee on Strategic Forces and Nuclear Deterrence, and it is of great importance to me and to each one of us as well.

I want to assure you that nothing in this bill will impair the production of nuclear materials needed for our weapons stockpile. Title I specifically empowers the President to exempt any DOE facility from complying with a board recommendation by determining that it is in the paramount national security interest to provide such an exemption.

Any balancing of the needs to protect the paramount national security interests of the United States on the one hand and the need to protect public safety and health from hazards at DOE production operations on the other is too an important a decision to be left solely to the Secretary of Energy, whose basic job is the production of nuclear materials.

Only the President has the breadth of view and the fundamental authority to make such a choice, and Title I of my legislation assures that the ultimate choice is his.

I would like to have included in the record, Mr. Chairman, a list of the 21 GAO requests that we have here, reports on safety, health and environment at DOE nuclear facilities with detailed conditions warranting the kind of remedy that S. 1085 would provide.

Senator EXON. Without objection, they will be entered in the record.

[The information follows:]

Nuclear Waste: Unresolved Issues Concerning Hanford's Waste Management Practices (GAO/RCED 87-30; Nov. 1986).

Nuclear Energy: Environmental Issues at DOE's Nuclear Defense Facilities; (GAO/RCED 86-192; Sept. 1986).

Nuclear Safety: Comparison of DOE's Hanford N-Reactor With the Chernobyl Reactor (GAO/RCED 86-213BR; Aug. 1986).

Nuclear Waste: Impact of Savannah River Plant's Radioactive Waste Management Practices (GAO/RCED 86-143; July 1986).

Nuclear Energy: A Compendium of Relevant GAO Products on Regulation, Health, and Safety (GAO/RCED 86-132; June 1986).

Nuclear Safety: Safety Analysis Reviews for DOE's Defense Facilities Can be Improved (GAO/RCED 86-175; June 1986).

Environment, Safety, and Health: Status of Department of Energy's Implementation of 1985 Initiatives (GAO/RCED 86-68FS; Mar. 1986).

Nuclear Waste: Department of Energy's Transuranic Waste Disposal Plan Needs Revision (GAO/RCED 86-90; Mar. 1986).

Environment, Safety, and Health: Environment and Workers Could Be Better Protected at Ohio Defense Plants (GAO/RCED 86-61; Dec. 1985).

Environment, Safety, and Health: Information on Three Ohio Defense Facilities (GAO/RCED 86-51FS; Nov. 1985).

DOE's Plutonium Facility (GAO/RCED 85-3; Sept. 1985).

Department of Energy Acting To Control Hazardous Waste At Its Savannah River Nuclear Facilities (GAO/RCED 85-23; Nov. 1984).

DOE's Safety and Health Oversight Program At Nuclear Facilities Could be Strengthened (GAO/RCED 84-50; Nov. 1983).

Decommissioning Retired Nuclear Reactors At Hanford Reservation (GAO/RCED 83-104; Apr. 1983).

Cleaning Up Nuclear Facilities—An Aggressive and Unified Federal Program Is Needed (GAO/EMD 82-40; May 1982).

GAO's Response to DOE on EMD-81-108, "Better Oversight Needed for Safety and Health Activities at DOE's Nuclear Facilities" (EMD 82-36; Jan. 1982).

Congress Should Increase Financial Protection to the Public From Accidents at DOE Nuclear Operations (EMD 81-111; Sept. 1981).

Better Oversight Needed For Safety and Health Activities At DOE's Nuclear Facilities (EMD 81-108; Aug. 1981).

GAO's Analysis of Alleged Health and Safety Violations At The Navy's Power Training Unit At Windsor, Connecticut (EMD 81-19; Nov. 1980).

Department of Energy's Safety and Health Program For Enrichment Plant Workers Is Not Adequately Implemented (EMD 80-78; July 1980).

Decommissioning Hanford Reactor (EMD 79-20; Jan. 1979).

Senator GLENN. Thank you.

I would also like to have unanimous consent to include additional material for the record which we may have a little bit later.

Senator EXON. Without objection, so ordered.

[The information follows:]

[From the New York Times, Dec. 27, 1986]

### THE BOMB MAKERS' COMPLACENCY

Facilities for producing America's nuclear warheads are decrepit, safety procedures lax and management complacent. The Reagan Administration did not create these problems but it has made them worse.

It doubled production of nuclear warheads since 1980, mostly for new weapons ordered by the Carter Administration, but spent little to modernize the aging plant. Now, maybe just in time to avert a serious accident, the Department of Energy has placed some plants under new management and ordered others shut down. It's a step toward protecting health, and national security, but too small and too aimless.

Nuclear warhead production is a huge industrial enterprise with 90,000 employees and assets worth $25 billion. The 18 major sites in its assembly line stretch from Hanford, Wash., to Savannah River, S.C. Given the importance to security and the dangerous materials involved, it's astonishing that, as Matthew Wald has reported in The Times, the industry seems to be "frozen in time, operating year after year with the equipment of the 1950's and 1960's." Thousands of workers are at risk from antiquated machines and safety procedures more appropriate to World War II.

The Department of Energy's major task is to oversee the plutonium complex, to which it devotes two-thirds of its budget. Yet it took the disaster at Chernobyl to force the department to pay attention to its similarly designed plutonium production reactor at Hanford. One consultant who was asked to assess the Hanford reactor noted the widespread complacency at Chernobyl, adding that "I have found the same problem here." Two of the four consultants recommended the plant be closed permanently unless urgently required by the national defense. The department says it is so required, and this month ordered the reactor closed temporarily to upgrade safety features.

Complacency in handling plutonium is rife at another part of the vast Hanford complex, the plutonium finishing plant. Capping a long record of safety violations, workers almost caused a lethal accident in October by transferring plutonium in a way that risked inducing a nuclear chain reaction. That close shave moved the department to shut the plant indefinitely.

Worker and environmental safety are neglected throughout the nuclear warhead industrial complex. At the ingot-making plant in Fernald, Ohio, a blanket of uranium dust used to cover the plant. Common practice throughout the complex is to dump hazardous and radioactive materials nearby, so that the soil and ground water often are seriously contaminated.

The reason for the neglect is that the Department of Energy is oriented toward production, not safety, and can write its own rules free of the Nuclear Regulatory Commission oversight. Of the $7.5 billion the department received this year for military activities, only 9 percent was allocated for managing nuclear waste and byproducts.

The department is taking belated remedial steps, like hiring a new contractor, Westinghouse, to run the whole Hanford plant. That doesn't go far enough. There is no reason that warhead production plants should not conform to the same safety standards as those of the civilian nuclear power program. Congress should appoint the Nuclear Regulatory Commission the arbiter of safety. If national security is a real consideration, just think how much it would be set back by a radiation release or other serious accident.

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CHARLESTON, SC, *November 13, 1987.*

Senator JOHN GLENN,
*Chairman, Committee on Governmental Affairs, U.S. Senate, Dirksen Senate Office Building, Washington, DC.*

DEAR SENATOR GLENN: At the time of my testimony before your Committee in March of this year I made the point that there needed to be some mechanism to provide special emphasis on the provision of Federal funds for required safety expenditures for the Department of Energy nuclear reactors. At that time I had no comment on how this might be factored into the complex Federal budget process in an effective manner.

Since that time I have had the opportunity to see your bill S. 1085 and the Report 100-173 reporting it out. In particular I have studied the Presidential appeal section of S. 1085, (pages 36 and 37 of the bill and page 29 of the report). I believe these sections will provide the necesssary special attention to the funding requirements for nuclear safety. They will serve to bring the problem to a level of attention that should fully involve the executive and legislative branches of the Federal government in the problem at an early enough time to have effect before it is too late.

As you will recall, in my testimony before the Committee in March, I commented that the root cause of our present safety problems, both nuclear and other, in the Department of Energy is traceable to inadequate funding for these functions, for operations, modifications, or replacements. S. 1085 should help in this regard if enacted.

Faithfully yours,

LOUIS H. RODDIS, Jr.

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DAMASCUS, MD, *November 14, 1987.*

Senator JOHN GLENN,
*U.S. Senate,*
*Washington, DC.*

DEAR SENATOR GLENN: I strongly support S. 1085, Title 1, to create an independent safety board with oversight over the Department of Energy (DOE) nuclear facilities. In particular, I especially support the bill's provision calling for review by the President of recommendations of the Board that are disapproved by the Secretary of Energy, and the subsequent actions, called for in the bill, following Presidential review.

As one of the members of the President's Commission on the Accident at Three Mile Island, I recall several important similarities between the present health and safety issues related to Department of Energy activities and those that evolved in the course of the Commission's investigations on the Nuclear Regulatory Commission and the relevant utility.

Those investigations revealed major inadequacies in government and private alertness to past events related to nuclear power plant safety, and in action needed to assure public safety in the future. These findings were largely responsible for the Commission's recommendation for the establishment of an independent, Presidentially appointed committee with the responsibility to report periodically to the President concerning all significant events related to nuclear power plant safety in the future. Although a board with some of these responsibilities was established for a short time after we submitted our report to President Carter, it was abolished by the Reagan Administration. I believe now, as I did then, that it was a serious mistake not to adopt and maintain the recommendation as it was originally proposed by the Commission.

Some may argue that the Board called for in S. 1085 will not be needed if there are future US-Soviet agreements for a cutoff in production of nuclear weapon materials. Whether such a cutoff is agreed to, soon or in the more distant future, however, it will not remove the need for careful attention to public health and safety issues related to DOE activities, such as dismantlement of decommissioned facilities and permanent disposal of nuclear wastes from military production or processing facilities, that will continue for a very long time in any case.

Sincerely,

THEODORE B. TAYLOR.

[Additional article from the New York Times, December 14, 1986, retained in Committee files.]

Senator GLENN. I would like to remind my colleagues on the subcommittee that S. 1085 was favorably reported out of the Committee on Governmental Affairs with very strong bipartisan support on September 24, 1987, and among its cosponsors are three of our colleagues on the Armed Services Committee, Senators Cohen, Levin, and Wirth.

I would like to ask my other colleagues on the Armed Services Committee likewise to support this important legislation and at the end of the period of sequential referral to cooperate in moving this legislation expeditiously to the floor.

The national security needs of our country and the safety and health of the men and women who work in the DOE nuclear complex to meet those needs demand nothing less than the most vigorous action on our part, working together, to pass this legislation as expeditiously as possible.

Mr. Chairman, I would be glad to discuss this further or answer any questions you may have.

[The prepared statements of Senators Glenn and Roth follow:]

## PREPARED STATEMENT BY SENATOR GLENN

Mr. Chairman, members of the Committee, I am pleased to appear before you today to discuss S. 1085, "The Nuclear Protections and Safety Act of 1987". This bill seeks to address actual and potential deficiencies in the management of safety and health issues at Department of Energy (DOE) nuclear production facilities.

Title I of the bill has been sequentially referred to the Senate Armed Services Committee. With your indulgence, I will describe the background and provisions of Title I. This legislation is designed to improve the safety, health, and environmental conditions at some 127 government-owned nuclear facilities employing over 142,000 people located in 22 states. Evidence produced in four Governmental Affairs Committee hearings this year, and confirmed in 21 reports issued by the General Accounting Office (GAO), indicates that serious deficiencies and a number of potentially dangerous situations have resulted from DOE's neglect of safety, health, and environmental considerations.

### DEFICIENCIES IN DOE SAFETY RECORD INDICATE A BOARD IS NEEDED—DOE EMPHASIS OF PRODUCTION OVER SAFETY

Let me give you a few examples from the extensive record of the serious safety deficiencies at DOE nuclear plants. DOE has been operating some of its facilities unsafely as a result of emphasizing production over safety—and rewarding this behavior. In 1985, at my request, the Governmental Affairs' Subcommittee on Energy, Nuclear Proliferation, and Government Processes held a hearing in Cincinnati that demonstrated that production—not safety—was what counted at DOE's Feed Materials Production Center in Fernald, Ohio. Between 1979 and 1985, in a period in which the production of nuclear weapons materials doubled, DOE stepped up production goals at Fernald by 288 percent. DOE made only minimal capital improvements to the facility and had so little concern for oversight that it did not even have an onsite manager at Fernald. DOE's inattention to safety was so extreme that the release of some 275 pounds of uranium due to an air filtration malfunction continued undetected from mid-September to December 6, 1984. At the same time, DOE was giving award fees to the contractor for meeting production goals.

### DOE'S DISREGARD FOR SAFETY, HEALTH AND ENVIRONMENT

The 1985 hearing also demonstrated that DOE's negligence was historic as well as on-going. DOE admitted that Fernald released 95,000 kilograms of uranium to the air and about 75,000 kilograms to the water over the thirty-year course of its operations to the detriment of both the employees and surrounding community. Calculations done by the EPA's Office of Radiation Programs showed that between 1956 and 1969 the dose rate for a person living at the northwest boundary of FMPC would have experienced an average annual radiation of the lung equivalent to about 140 chest x rays. In the worst year, 1956, the dose rate at that boundary was equivalent to about 460 chest x rays. For the general population this dosage exceeds the EPA standard by over 12,000 percent, or about 125 times the government-set limit of exposure.

This past May, DOE revised its estimate upward, saying that the figure for releases of uranium to the air at Fernald was actually 136,000 kilograms, nearly 38 percent higher than the figure DOE gave at the 1985 hearing. DOE's explanation for the larger figure is that "some errors went undetected and obscure archival data were not retrieved." Relevant data is not "obscure" to the workers and citizens affected by these radioactive discharges, and releases of this kind clearly are unacceptable.

Partly as a result of evidence produced at the 1985 hearing, DOE changed the contractor at Fernald. Unfortunately, DOE's lack of attention to safety matters continues. This past March, Ohio's Attorney General Anthony J. Celebrezze, Jr., testified at a Governmental Affairs Committee hearing that DOE had been using an abandoned well for radioactive waste from Fernald—without having plugged the well before dumping in the radioactive waste water. The State of Ohio has cited this and other incidents in a lawsuit against DOE.

### INADEQUACY OF DOE'S REACTOR SAFETY

DOE's handling of reactor safety is just as alarming. The Department of Energy has reactors at Hanford in Washington State, Oak Ridge in Tennessee, and the Savannah River Plant in South Carolina. Serious problems exist with the reactors at all three sites.

The N reactor at Hanford has been placed in "cold" standby status. The Armed Services Committee took the strong and commendable step of voting on May 8 of this year to halt indefinitely reactor operations at Hanford. Since then, the Senate Appropriations Committee has also voted to place the N reactor in "cold" standby. I would like to commend this Committee, and particularly this Subcommittee, under the leadership of Chairman Exon, for their actions and concerns for the safety of the DOE national security programs.

At Oak Ridge, Tennessee, the Oak Ridge National Laboratory operates five reactors for DOE. All five currently are shut down. The High Flux Isotope Reactor (HFIR) has not been operating since 1986 because of an embrittlement problem. The remaining four reactors were placed in safe shutdown by DOE's Oak Ridge Operations because of safety concerns over the management and oversight of reactor operations.

At Savannah River the reactors are operating at reduced power levels. The General Accounting Office testified at our March 12, 1987 Governmental Affairs Committee hearing that for nearly seven years—from 1979 to 1986—DOE operated the nuclear reactors at its Savannah River Plant in South Carolina at 26 percent higher power level than the emergency core cooling system could handle. This situation persisted unabated because an error was made in the analytical model used to calculate the power limits. As a result, the citizens of South Carolina were exposed to a significant potential danger during this seven-year period.

Independently, the National Academies of Sciences and Engineering, under contract with DOE, has been reviewing the safety of DOE's largest reactors. In the course of its work, the National Academies' panel found that DOE's 26 percent power reductions, which were made in November and December 1986, might not be adequate to assure the safe operation of the reactors. On March 9, 1987, the National Academies strongly advised DOE to further reduce the power levels immediately.

DOE did not make public the National Academies' recommendation, even though the Department testified before the Governmental Affairs Committee on March 12 and 17 at two hearings on DOE nuclear facilities, one of which specifically addressed reactor safety. It was not until March 27, when the Governmental Affairs Committee independently became aware of the National Academies' letter to DOE, that DOE reduced the power levels to the current level of 50 percent.

The DOE response on this issue is further evidence that DOE sorely needs independent outside oversight.

### SYSTEMIC SAFETY PROBLEMS AT DOE NUCLEAR COMPLEX

The GAO, which is conducting an on-going investigation for me on safety conditions at DOE facilities, also testified at the Governmental Affairs Committee's March 12, 1987 hearing. The GAO found that at Savannah River "no effective management system exists to ensure timely clearance of action items related to reactor operations." By the end of 1985 Savannah River had a backlog of 198 outstanding recommendations, some dating back to the late 1970s. One deals with possible inadequacies of the safety computer which is the backup control system for the safe operation of the reactor.

In late 1986 a DuPont reactor safety evaluation committee stated its concern that "the backlog may indicate a trend toward a gradual deterioration of safety at DOE's South Carolina operation." The GAO further found that "inexperienced personnel are maintaining the reactors without adequate training and, in some cases, without proper written procedures." The GAO also found "that management inattention contributed to the operations and maintenance problems."

The concerns about the safety of the DOE nuclear complex, unfortunately, are systemic. Three "high-hazard facilities"—out of eight that the GAO examined last year—had incomplete or inadequate safety analysis reviews, known as SARS. The SARS are the tool for determining if a nuclear facility can operate safely without unacceptable risk. These "high-hazard facilities" have the potential for significant on-site or off-site releases of radioactive material in a major accident. In addition, although DOE Orders require independent reviews of SARS, the Department allows DOE's own field offices to carry out this function.

### ADDITIONAL SAFETY CONCERNS WITH AGED NUCLEAR COMPLEX

DOE's nuclear complex is aging. The newest DOE production reactor is twenty-four-years old. DOE is operating reactors at Savannah River built in the 1950s without knowing if the reactors are being operated beyond their life expectancies. The use of old equipment increases the potential for hazard already created by DOE's inadequate safety practices. Cracks in Savannah River reactors, embrittlement and other concerns at the Oak Ridge reactors in Tennessee, the problems with the N reactor in Hanford—these are a few of the many hazards of an aged production complex. These factors add to the urgency of passing legislation to create an independent safety board for DOE nuclear facilities.

### SAFE OPERATION NEEDED FOR FULFILLING DEFENSE PRODUCTION NEEDS

It is intolerable that the safety and health of the employees who are on the front line of our national nuclear defense production are themselves potentially endangered because the safety of the government-owned facilities may be compromised. We can produce nuclear materials to meet national security needs and provide safe working conditions. In fact, assuring safety at these facilities is a necessary condition to ensuring that national defense production needs will be met. Therefore, those of us concerned with national defense should welcome independent oversight over the DOE nuclear complex before an event occurs that puts employees and surrounding communities at risk. Nothing could be more disruptive to fulfilling national security requirements than a serious nuclear accident at one of the production plants.

### FUNCTIONS OF THE INDEPENDENT SAFETY BOARD

Let me explain briefly how the independent safety board proposed in Title I of S. 1085 will be constituted, how much it will cost, what facilities it covers, what its functions are, and how its recommendations will be implemented.

The board will consist of three members who are appointed by the President, with the advice and consent of the Senate. The members are required to be experts in the field of nuclear safety, and they will serve six-year terms of office, which will be staggered to ensure continuity. They will be expected to sever any significant financial relationships with DOE and its contractors at the time they assume office. The board can hire staff and consultants, but the staff is limited to one hundred full-time equivalents. Five million dollars ($5,000,000) annually is authorized for the board's first six years of operations. The board will have oversight of all DOE nuclear production and utilization facilities, except for naval nuclear reactors, which are governed by Executive Order 12344.

The board has six main functions. First, it will ensure that DOE's current health and safety standards are being implemented. Second, it will recommend changes in the content and application of DOE's standards. These recommendations are advisory, not mandatory. Third, it will investigate those events at DOE facilities which the Board determines to be important because of their actual or potential adverse effect on the public's health or safety. "Events" are defined to include actions or failures to act, including operational failures, which the board determines have an actual or potentially adverse effect on public health and safety. Fourth, the board will recommend specific measures designed to reduce the likelihood of such events occurring.

These recommendations must be administratively responded to in specific ways. Fifth, the board will issue periodic unclassified public reports with its recommendations, as well as the decision to implement corrective steps at DOE facilities. Finally, the board shall be consulted and make recommendations to ensure that the design, construction, and health and safety standards of all new DOE facilities are appropriate, and that these standards are commensurate with standards that are imposed on comparable private sector facilities.

## SOME BOARD RECOMMENDATIONS ARE ADVISORY, OTHERS REQUIRE A SPECIFIC RESPONSE

Some of the board's recommendations are advisory, others require a specific response. The board's recommendations regarding DOE orders are advisory. The DOE Secretary must notify the board and Congress as to which board recommendations will be implemented, and if the Secretary's decision is to not implement the recommendations, to give the reasons for this decision.

In contrast, however, Section 103 Subsection (g)(6) of Title I establishes the right of the board to recommend specific measures that should be adopted to substantially reduce the likelihood of events will occur at any Department of Energy nuclear facilities, and these recommendations are considered so important that the Secretary of Energy is required to specifically respond within ninety days and implement the recommendation unless it falls within specified-exception and exemption provisions.

Once a recommendation is made by the board pursuant to subsection (g)(6), the Secretary (or in certain instances the President) has five options in responding:

First, the Secretary may choose to implement the board's recommendation. Second, the Secretary could choose to close a facility. If the board recommendation concerns only a single facility, the Secretary of Energy can indicate within ninety days his intention to close the facility and actually close the facility within one year of the day the recommendation was received.

Third, in those instances where a board recommendation would lead to the affected facility being closed, or production dramatically reduced, the President could specifically exempt the facility from complying with the recommendation by determining that it is in the paramount national security interest of the United States to provide such an exemption. This provision is restricted solely to those instances where the security of the nation will be severely threatened by closing the facility, not for budgetary or technical exigencies. The President is specifically required to renew annually this determination if the board's recommendation has not been implemented and the facility continues to operate. Any determination of the need to exempt a DOE nuclear facility from the board's recommendation should contain those facts and findings which support the exemption.

Fourth, the Secretary may wish to implement a recommendation but lack the funds to accomplish this. In such instances the Secretary should indicate his intention to implement the recommendation and follow up by complying with the provision which requires the facility to close unless the President specifically requests the necessary funds to implement the recommendation as part of the budget process within twelve months of the recommendation being issued.

Fifth, in those instances where the Secretary believes that the board's recommendations are technically or economically infeasible, the Secretary will have the burden of obtaining a Presidential certification in support of the Secretary's initial decision not to implement the board's recommendation. In making its recommendations the board is asked to consider technical and economic feasibility. This standard does not require the board to make formal findings concerning economic or technical feasibility.

The burden of demonstrating that a board recommendation is not technically or economically feasible rests with the Secretary. If the Secretary disagrees with the board's recommendation on these grounds, the Secretary is required to report the disagreement with the board to Congress and the President, along with the reasons for the Secretary's decision.

Within sixty days of the Secretary's decision not to implement the board's recommendation, the President may overrule the Secretary's decision and require that the board's recommendation be implemented. On the other hand, the President may choose to affirm the Secretary's decision not to implement the board's recommendation and supply the specific facts and findings which support this decision. Thus, even where the board and Secretary disagree, within 150 days a final decision would be reached on the issue.

### DEFENSE PRODUCTION NEEDS

I know that guaranteeing the ability of our nation's defense capabilities is an issue of particular concern to the Subcommittee on Strategic Forces and Nuclear Deterrence. It is of great importance to me as well. I want to assure you that nothing in this bill will impair the production of nuclear materials needed for our weapons stockpile. Title I specifically empowers the President to exempt any DOE facility from complying with a Board recommendation by determining that it is in the paramount national security interest to provide such an exemption. Any balancing of the needs to protect the paramount national security interests of the United States, on the one hand, and the need to protect public safety and health from hazards at DOE production operations, on the other, is too important a decision to be left solely to the Secretary of Energy, whose basic job is the production of nuclear materials. Only the President has the breadth of view and the fundamental authority to make such a choice. Title I of my legislation assures that the ultimate choice is his.

I would like to have included in the record a list of the 21 GAO reports on safety, health, and the environment at DOE nuclear facilities, which detail conditions warranting the kind of remedy that S. 1085 would provide. I also reserve the right to offer additional material for the record.

I would like to remind my colleagues on the Subcommittee that S. 1085 was favorably reported out of the Committee on Governmental Affairs with strong bipartisan support on September 24, 1987 and that among its cosponsors are three of our colleagues on the Armed Services Committee: Senators Cohen, Levin, and Wirth. I would like to ask other colleagues on the Armed Services Committee likewise to support this important legislation and, at the end of the period of sequential referral, to cooperate in moving this legislation expeditiously to the floor. The national security needs of our country and the safety and health of the men and women who work in the DOE nuclear complex to meet those needs demand nothing less than the most vigorous action on our part—working together—to pass this legislation as expeditiously as possible.

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## Prepared Statement of Senator William V. Roth

### THE NUCLEAR PROTECTIONS AND SAFETY ACT OF 1987

I am pleased to testify before the Committee on Armed Services regarding S. 1085, The Nuclear Protections and Safety Act of 1987. The legislation would establish a nuclear safety board to serve as an independent overseer of Department of Energy Nuclear facilities. This is the part of the legislation in which the Committee is interested.

The issue of nuclear safety and environmental protection stir very strong emotions and raise important concerns. Nuclear materials, such as those produced and stored at Department of Energy nuclear facilities, must always be treated with the utmost care, security and safety.

I support S. 1085 because of my belief that this bill provides a strong foundation for providing independent safety review and oversight of Department of Energy nuclear facilities. The original bill was a good starting point. After four Committee hearings detailing many of the safety and environmental hazards which exist at DOE nuclear facilities, I am convinced that independent outside oversight is needed.

We owe it to the American people that government facilities meet high standards of reactor and environmental safety and pose no threat to the American public. I believe the legislation passed by this Committee is a step in that direction.

A critical element of maintaining safe facilities is maintaining a sound system of checks and reviews. The DOE Office of Environmental, Safety, and Health is a strong component of this system. But even as Secretary Herrington has acknowledged, some outside oversight is necessary to ensure the confidence of the American people.

I agreed to co-sponsor S. 1085, as reported, after the Committee adopted the two amendments which I offered. While I agree that independent oversight is needed in this particular instance, I am in general very concerned about unnecessarily creating new government entities and adding to the government bureaucracy. The adoption of my amendments helped to meet my concerns about limiting the growth of the federal bureaucracy. The Board has been created to serve a very important function—one that I wholly support.

Senator EXON. Before the questions, I would like to recognize my colleague from South Carolina, the ranking member of our subcommittee, Senator Thurmond.

Senator THURMOND. Thank you very much, Mr. Chairman. The Bork hearing is on in the Senate, and I need to get back there as soon as I can.

I want to commend, Mr. Chairman, both you and Senator Glenn, the distinguished chairman of the Governmental Affairs Committee, for agreeing to this hearing this morning. This is an appropriate testament to the importance that you both attach to the issues raised by S. 1085.

As you indicated, Mr. Chairman, the committee is under a very constrained schedule for sequential referral of this legislation. I want to make a commitment for myself and for my side of the aisle that we are willing to work with you in any way you see fit to facilitate these proceedings and the pending markup.

Mr. Chairman, your statement summarizes the problems that are facing the nuclear weapons production complex, and I congratulate you for the leadership that has put this committee out in front in seeking to deal with these problems on a long-term basis. The initiative for a new production reactor, which was supported by this committee, is a case in point.

At the same time, Mr. Chairman, I know that we all share the view that safety cannot be secondary to the production requirements of the complex.

I agree with my colleague from Ohio that independent outside oversight of safety issues affecting the Department of Energy's weapon production complex is needed. This is not so much because DOE has been unsafe, because I believe their safety record is second to none, but rather, as you stated, Mr. Chairman, it is because independent outside oversight will add to the credibility of DOE's ability to handle health and safety issues.

Some of the issues before us include how S. 1085 deals with questions such as how much safety is enough, how much safety is affordable, and how are we to weigh the delicate balance of safety and the interest of national security.

I look forward to reading the testimony that I missed this morning, and I want to welcome Senator Glenn before this committee.

I have a couple of questions, and then, Mr. Chairman, if you will excuse me, I will then have to go.

Senator Glenn, what is the safety criterion, implicit or explicit, in your bill by which the proposed independent safety oversight board would be guided. If DOE is forced, and Mr. Peach will testify, to consider seriously each and every recommendation raised by the board, what is the mechanism to ensure that the board's recommendations address only serious safety issues?

Senator GLENN. The provisions in this require that the board can make its recommendations at different levels. There could be recommendations that could be deferred for some period of time. There could be other recommendations they feel are so important that they would have to be addressed immediately on a safety basis of either shut a facility down or get a Presidential finding or a Presidential agreement that that facility would continue to operate because of national security.

There is no one criteria that says what they will report. They can made suggestions for improvement of plant operation and safety for the workers in the plant and the community of people around that plant, also, or there can be something where they would be concerned about a matter so important that it might be a budding Chernobyl, and that would be go to the Secretary and immediately probably through to the President for a final decision.

So their recommendations would not have one specific set of criteria. It would address things such as have occurred at Savannah River, I would add to the distinguished Senator from South Carolina, where we found that for many years the plants at Savannah River were operating above the capacity of the cooling system to cope with any emergency.

So the power level for the plants has been reduced, the C reactor has been closed, the other three reactors at Savannah River are operating at about 50 percent capacity, I believe is the approximate figure, because of concerns about cracks.

Now, something like that would be of an immediate concern and would go to the highest level immediately. Other concerns that would be addressed by the board could be of a much lesser nature and could be time deferred. So there is no one single standard that would apply to all the board's activities.

Senator THURMOND. Senator Glenn, did your committee receive any testimony with respect to outside oversight by the Advisory Committee on Reactor Safeguards, known as ACRS, and was there any consideration given to modeling the panel in S. 1085 after the ACRS? If so, why was this approach rejected?

Senator GLENN. Yes. Mr. Roddis, who chaired the Roddis panel that looked into some of the nuclear safety matters and also the vice chairman of the ACRS, gave testimony. They both were very concerned about the same things we are addressing here.

I do not recall their testimony very specifically, but they both favored the approach we are taking, which calls for the recommendations to be made and worked out with the Secretary where possible. If there are disagreements there, it gets bucked up to the President for his final decision, and if production is so important that it has to continue for national security needs, then the President can make that determination.

So this does not stop any production. I want to stress that. At the same time, it tries to set up a situation where DOE can no longer just ignore safety concerns, as we feel they have done pretty much for the last 30 years or so. Their emphasis has been on production, not on the same level of safety that we have in our civilian plants.

Senator THURMOND. Mr. Chairman, thank you for your courtesy, and, again, thank you for your leadership in this matter.

Senator EXON. Thank you very much, Senator. We are very glad to have you. We know that you took time out of a very pressing day to come over, and we appreciate it.

The Senator from Maine.

Senator COHEN. Thank you, Mr. Chairman.

Senator Glenn, one of the objections that is frequently raised about this independent board is that it is going to create another level of bureaucracy.

One suggestion that has been made is why not simply use the NRC to monitor the safety features of the various plants.

Would you want to respond to the desirability or the feasibility of NRC being the safety advisor on this?

Senator GLENN. We structured this a little differently for one very good reason. NRC has the full authority to shut plants down, civilian plants, period. Now, we did not want to set up a condition like that for the nuclear production facilities. We felt they are too important. We may get into a situation where we are weighing different degrees of bad situations here in determining what to do.

So we did not want to make just a plain group that would go in and shut things down. We wanted it to be more considered than that.

Senator COHEN. Is there a separate problem as well that the NRC might then be forced to have a separate standard for defense facilities and one for civilian facilities with all of the political ramifications of having the NRC maintain a dual standard?

Senator GLENN. Yes, that is exactly right. The second consideration was just as you stated it, that we did not want to see NRC forced into a situation where they would have to deal with two different levels.

While we have some quarrels with NRC also in some of their internal procedures, I think by and large through the years they have done a pretty good job. If they had to apply the same criteria they use on civilian plants to DOE plants right now, they would shut down every single plant in the country. I think there is no doubt about that.

Senator COHEN. How about a DOE advisory group or board within the Department of Energy itself?

Senator GLENN. There have been advisory groups within DOE before, and what we have seen is that the emphasis through the years has been so much on production in DOE that they have not emphasized safety to the level that they should have.

So I just think it is inadequate with the track record that DOE has. I must say, we have gotten their attention the last year or two, and I think they are moving. They are trying to make some moves in this direction, but I see this as being so important for the people of this country that we have nuclear safety, including the DOE system, that I think this group and the way we have it set up in this legislation is the way it should go.

It falls short of doing what NRC has the power to do over on the civilian side right now.

Senator Cohen. As you can see, Mr. Chairman, staying with the contemporary events, I have been throwing high inside fast balls to Senator Glenn.

I think it comes down to a question, really, of money. My understanding is that on the Savannah River Plant itself, to correct the deficiencies would cost in excess of $12 billion. The DOE has looked at it and suggested perhaps we take care of 10 percent. That is still $3 billion plus.

I think the total budget for DOE's atomic energy defense budget for fiscal year 1987 is $7.5 billion. So it really comes down to a question of economics. We have been deferring and deferring and deferring the safety because we have been unwilling to come up with the money to pay for it.

I share your belief that we are deferring disaster, and it will come back to haunt us at some future time. Now is the time to take action. So I again want to commend you for coming forward with this legislation.

Senator Glenn. I thank the distinguished Senator.

Now, let me comment on the cost estimate. This is tough to do, I admit, so I do not say this in a denegrating way. We have asked DOE repeatedly to give us an estimate. Number one, what is it going to cost to correct the situation we have in the plants right now.

What is it going to cost to clean up what has wound up as a toxic radioactive mess around some of these plants?

At Fernald, for instance, we have wells off site. They are radioactive. They are closed on farms around there because of contamination in the aquifer level. How do we correct a situation like that, or can we? I do not know that we even can.

Number one is to overhaul the facilities and make the production facilities we need in this country. Most of these plants are on the order of 30 years old. The last one that was constructed, as I mentioned earlier, is 24 years old. That is the most modern plant we have.

I think when we get into overhauling these facilities and building new facilities, which we may have to do, and correcting the problem of off-site waste as well as on-site waste, we are into tens upon tens upon tens of billions of dollars, and we have not addressed that.

We have asked DOE to give us an estimate of that, and they are going to give us a first cut at it next summer.

First, we are supposed to get a first cut estimate of what this may cost, and I am scared to see that figure, quite honestly, because I think it is going to be an horrendous figure.

I want to work with them on this, and it is a monumental job to try to even figure out what we need to do at this point. So I am very sympathetic with their problem, but we have to have a bite at it, as I told them in that last hearing. We have to have a bite at it to know where to start. Give us the first steps to take.

What are the most important things we can do?

Where is the greatest danger to safety and health?

What is the most antiquated plant we have that we need for the security of this country with the plutonium and tritium production and so on?

We need a place to start because we have Hanford shut down and Savannah River is running at half power on three reactors and another one is shut down. We need some information on where to start so we can fight this through the budget.

Senator **Exon**. Thank you, Senator.

Senator Wirth.

Senator **Wirth**. Thank you very much, Mr. Chairman.

Senator **Glenn**. I am delighted that you are here, and I greatly appreciate the efforts that you put into S. 1085. I am a cosponsor of that bill, and you and I have worked together over the years to do what we could to strengthen this whole area.

I believe, Mr. Chairman, that the area that Senator Glenn has talked about so eloquently and that Senator Cohen has talked about has also been made clear in a variety of other areas. On the House side, there has been extensive discussion from Congressman Dingell and his oversight committee. Ms. Mary Walker at DOE is beginning to get into this area. The problem, I think, is very, very well illustrated.

I think we are in a situation where the Department of Energy has been unwilling and probably unable in many ways because they do not have the information to address some of these really serious environmental, health and safety problems.

I come to this, Mr. Chairman, because of my detailed involvement in part of the weapons complex, Rocky Flats, which is in the suburbs of Denver now. It was to be way out in the country when Rocky Flats was first built, but pressure from the local chamber of commerce 30 years ago said let us put it near Denver where it will add to the health of the economy. Unfortunately, it was placed there, and Denver has grown right out to the edge, so we have a major nuclear facility right in the middle of the city.

I have been involved in Rocky Flats, with the help of Senator Glenn and many others for many years, doing the best that we could to make this facility safer and more logical.

On the House side, I introduced legislation, which in fact went significantly beyond what is in Title IV of S. 1085, to transfer a great deal of this jurisdiction out of the Department of Energy and to send it over to the Department of Health and Human Services.

I believe that this legislation, while very commendable and something that is essential, does not go far enough. I think we ought to follow a pattern similar to that that we find with OSHA and NIOSH, similar to that which we see in most States where the State departments of health are monitoring health and air pollution and water pollution.

The NRC example is one that has been brought up this morning, where you have an independent commission.

I think that EPA sets standards independently.

We have that kind of independence from the fox and chickenhouse situation, and I think that we ought to go even further than this, but I understand that the legislation set up by Senator Glenn is you get as much as you can get at any particular point, and I think that we ought to at least go as far as what is laid out here.

Finally, I would note, Mr. Chairman, and echo exactly what Senator Cohen was stating, that we have got to move now on the overall complex. This legislation is but one small but important first step; but it is small.

It seems to me that we have an obligation to, for example, hold the current administration's feet to the fire so that they do not get out of town in January 1989 without addressing the very severe problems that exist and for which effectively nothing has been done over the last 8 years.

We cannot condone their actions by sweeping the problems under the rug to be discovered by a new administration. I know that they are doing a study. Senator Glenn has requested a study as well as to what the size and scope of this problem is, and they have said that their study will be back to us next spring or next summer.

Now, I am here to bet you, Mr. Chairman, that that study does not come in next spring or next summer but has slipped and slipped and slipped so that it goes away by the time that these guys have to depart the premises.

Senator **Cohen**. That means all the guys are going to have to depart the premises?

Senator **Wirth**. I meant the ones who are putting kobalix on this, Senator Cohen, the executive branch; the ones putting the kobalix on getting information out early.

I think, Mr. Chairman, that we can do a more expeditious job of that. The information is all out there. It is no mystery what is going on at Savannah River. It is no mystery as to the size and scope of the problems at Rocky Flats. It is no mystery as to the very severe issues that surround Hanford. It is no mystery that Pantex has aged just like everything else, all the other plants. It is no mystery as to the kinds of problems that exist in Ohio.

Each one of those problems has been studied, and I will bet you, Senator Glenn, that if we ask the administration to come back to us and really pressure them, by the first of December they could have a pretty accurate first cut as to what the size and scope of this problem is.

I bet you they could do that. I know they could do it for Rocky Flats. You have cited the numbers for Savannah River. Senator Adams and the northwest delegations have a good measure of what the problems are at Hanford. You know pretty broadly what the problems are in Ohio. I bet you we could total all of those up and find out how severe this problem is.

We could then begin to get out on the table what has to be done. At Rocky Flats, Mr. Chairman, we know very specifically what should and must be done in terms of measures to make that plant more safe and secure. Forget whether the plant ought to be there or not. It should not be, but it is there. How do we make it as safe and secure for the workers who are there?

The DOE is unwilling to invest even the minimum amount of money, minimum being hundreds of millions of dollars versus the problem of moving the whole plant, to make it safe and secure. They will not come up here, and they tell us if we invest $2 or $3 million, we can get 95 percent of the effectiveness, which is absolute balderdash. That is not the case. That is not going to do the job.

In the area of beryllium, which you are familiar with, with a number of workers and plants in Ohio as well, Senator Glenn, we have some very real problems with the exposure of workers to beryllium, problems that exist in Ohio, problems that exist at Rocky Flats in Colorado.

We did a major cleanup of the beryllium area at Rocky Flats 2 years ago, and recommendations were made to the DOE as to what had to be done to make that plant safe for the workers. They have not invested the money to make it safe and have now even gone to the point of even saying to the workers who work with the beryllium that it is voluntary for them to work there or not, which is effectively saying if you want to keep your job, essentially, you work there. We are not going to invest the money to make that area safe.

This legislation is a first small and important step, Mr. Chairman. The problem, as Senator Glenn has suggested and Senator Cohen has suggested and as we all know, is enormous. We have to get at it now over all, in Savannah River, in Ohio, at Pantex and Hanford and Rocky Flats, the whole operation. It may be that we just have to start de novo and develop a whole new complex.

I am delighted to have this opportunity to join with you in this legislation, Senator Glenn, and to join with all of us in trying to turn up the temperature in this very, very severe area not only domestically but for, as you very well pointed out, our whole weapons complex and our whole national security area.

Thank you very much, Mr. Chairman.

Senator **GLENN**. Thank you very much.

Senator **EXON**. Senator Wirth, thank you.

Senator Glenn, let me get into some of the specifics of S. 1085. First, for the record, we should clarify where everyone is coming from on this as best we can. This bill comes out of the Governmental Affairs Committee which you so ably chair. You are an important member not only of the Armed Services Committee but the subcommittee that is now reviewing this matter, and we appreciate your coming over.

There is no one who is more concerned about the national defense of the United States than you. I recognize that, I realize that and I want to state it for the record. The same thing goes for Senators Cohen and Wirth, who are also members of your Governmental Affairs Committee and are here, among other reasons, I suspect, as cosponsors of the measure that you have introduced.

Now simultaneously, we have some other members of both this committee and this particular subcommittee; namely, Senator Bingaman and Senator Nunn, who do not share the enthusiasm or the view for this particular piece of legislation as regards to protecting the national security interests of the United States.

So I simply say that I tend to agree at this juncture with Senator Bingaman and Senator Nunn that there is nothing wrong at all with the thrust of S. 1085. We do have some concerns about turning over the basic decisionmaking on when we do and do not close a plant to an independent board that probably has no recognition nor responsibility with regard to the national defense interests of the United States.

Let me come at it from one other position which I have talked with you about and which I think you basically understand. I am not sure that this legislation, as it is presently drawn, does adequately address the concerns that some of us have that are not cosponsors of the legislation. It is a hard one to oppose.

Who is against safety? No one is against safety, but possibly this legislation could be changed so that our concerns could be alleviated. Let us talk a little bit about the Roddis panel.

Do you believe that the Roddis panel served a valuable purpose? I assume you do.

Senator GLENN. Yes, I do indeed. I am sure we could go to some of the technical details they went into and get people to refute some of them, but I think in general their look at things was good.

Senator EXON. They recommended, did they not, the shutdown of the N reactor?

Senator GLENN. They did indeed for safety reasons. Now, what they said was there were certain corrections that needed to be made or it should be shut down just for the health and safety of people there.

You must remember that this was in the wake of the Chernobyl disaster and that the N reactor is the only reactor we have in this country that is the same basic design as Chernobyl. That was their concern about the N reactor.

If I might say, Senator Nunn did not vote on this. I think he has expressed privately some reservation about this.

Let me address a misconception that the Chair stated a moment ago; that is, this board could close something down. This board could not close anything down without the approval of either the Secretary of Energy or the President of the United States. The board makes a recommendation, and what we require is a response from the Secretary or the President if that recommendation is not to be followed.

So the board cannot close anything themselves without having gone through the Secretary and with the President of the United States. The board may not know some of the international situations of why we need certain materials at a certain time. So we left that very much in the hands of the Secretary and the President.

So I think that was a misconception that the board is going to move in and shut something down.

Now, they recommend that Hanford be shut down, that the N reactor be shut down in this case, because they felt it was unsafe and that we might have a budding Chernobyl on our hands. I think their action there was very well taken.

Now, once again, if we needed that facility absolutely, unequivocally, for production of fissile material, then the President could say Hanford operates because we are operating with a bigger danger than just the off chance that it might have some difficulty.

Senator EXON. The facts of the matter are, Senator Glenn, that while your statements are well meaning and very well reasoned out in the unreal world, the real world brings us back to the fact that while the Roddis report did not require the shutdown of the facilities, DOE stepped in and temporarily shut down this reactor ahead of schedule after they received the Roddis report, did they not?

Senator GLENN. I believe that is correct. As I understand it, there were only two members of the Roddis panel that recommended shutdown. There were six members on that panel, and just two recommended shutdown. DOE did, however, move in and shut it down. It is in a standby status right now.

Senator EXON. I think that kind of points up what one of my concerns are. Even though only two members of the Roddis panel moved for a shutdown, the DOE moved in and closed it down ahead of time.

In the real world, we have to recognize that when anyone says there is a problem out here, then that puts the pressure on, in this case, the DOE to move in promptly and take whatever action basically is necessary because that is the easy way out.

So all I am saying is that if we go ahead and do what you suggest on this panel, I am not sure that the national security interests of the United States would be completely considered, and it would be very difficult for the Department of Energy and/or the President of the United States, whoever that is in the future, to simply say, well, there is no problem out there, and I am going to go ahead and have this continue to exist.

The point I am trying to make, Senator Glenn, is that the panel has no consideration or knowledge, I suspect, of the national security interests of the United States, and that is why this subcommittee and this full committee were given a role to play when the manufacture of certain critical elements necessary to the national security of the United States were involved.

Let me ask this question. Do you agree——

Senator GLENN. Let me answer that first, if I might, or comment on it at least.

I would respond that DOE has known for many years they had a problem at Hanford. They have known that N reactor was old and had big problems. They have not gone ahead to fix it. They finally moved on it, but what if we have future administrations that are not even as responsive as this administration? What if they had kept Hanford going?

Let me say this. DOE agreed with the Roddis panel recommendations, but they have not yet implemented all of the recommendations to this day. In fact, DOE had planned to start up the N reactor at Hanford without completing the recommendations of the Roddis panel. DOE said it would start up the N reactor in December at a time when it knew that hydrogen mitigation work, for instance, could not be completed until January.

The probable risk assessment, the PRA, which was recommended would take several years to complete; yet, DOE said it would plan to reopen the N reactor without having that kind of a probable risk assessment.

So DOE's response to the Roddis panel, I feel, is yet another example of the necessity for an outside independent safety board.

I know it is not customary for the witness to ask questions, but I am certain the Chair would not want to be quoted as saying that he would not have shut down Hanford. They favor reopening it right now no matter what.

I do not think any of us want operations that are unsafe, and DOE felt it was unsafe. That is why they shut the thing down. The Roddis panel was an excellent outside group that gave some recommendations, but in spite of all that DOE was going to reopen the plant before the probable risk assessments had even been completed.

Senator EXON. Senator, do you agree with Mr. Louis Roddis, who headed the panel, that the activity of his panel needs to be institutionalized on a permanent basis?

Senator GLENN. I would not institutionalize specifically the Roddis panel as such.

Mr. Roddis favors this legislation, S. 1085. He testified to that effect. I think he sees it as in some ways an institutionalization of what he was doing, and I would view it the same way, also, but it takes a little different tack.

It says you have a group that are experts. They cannot shut anything down themselves, but they can make recommendations on health, safety and production matters. Where those recommendations are going to be overridden, the Secretary can override them and the President can override them. The panel cannot shut anything down, but that way we get back to paralleling production and the emphasis on safety and health.

Senator EXON. Senator Glenn, I am not sure that there is a significant difference between the way you would like to solve this problem, recognizing that there is a problem, and the way I would like to solve the problem.

I happen to feel that maybe when you look at some of the details of S. 1085, you might agree that some of the language in that bill is something that we just do not want and might find ourselves in a difficult position from a national security interest standpoint in the future.

You have presented this bill as you honestly feel, in that it leaves a lot of loopholes for appeal and decision eventually by the President. It seems to me that the exceptions for a shutdown are very difficult to avoid the way this measure is written. Maybe I am not reading it correctly.

The problem must be an extremely remote technical possibility to avoid complying with the board's recommendations, and I quote. So I guess what I am saying is that we may be giving this board too much authority the way it is written. Now, maybe that can be changed somewhat so that some of my concerns in this area would not be as fundamentally flawed as I, at least, think they are at this particular juncture.

Is it not the intention of the Senator from Ohio, as I understand it from his testimony, today, to have this board, whatever it is, to be an advisory board, a board that could look at the safety angle and make recommendations and bring some necessary pressure to bear on the Department of Energy, now or in the future?

I believe that is the central thrust of your legislation. I am wondering if the Senator would not agree that possibly some of the wording in that measure, S. 1085, does go beyond even what the Senator might like to do. Does the chairman have any legitimate concern in that area, in the opinion of my colleague from Ohio?

Senator GLENN. I am always glad to discuss any language changes that might make things more offerable and more practicable and pragmatic, and I would be happy to discuss that.

I would refer to page 33 of the bill, though, where it says, and this is the guts of it—two things here, really. It says: "The board shall recommend to the Secretary those specific measures that should be adopted to substantially reduce the likelihood that events will occur at any Department of Energy nuclear facility." And "events" is described separately here.

All we are trying to do is prevent the occurrence of "events". What we are trying to do in this is require a response from the administration. No longer would a department be able to even have the option of just sweeping things under the rug and just saying our job is production, do not bother us with safety and health, which has been the rule for too long.

It requires a response. That is all it does. It says that the board will make recommendations on those specific measures that should be adopted to substantially reduce the likelihood that events will occur at any Department of Energy nuclear facility, and it goes further and requires a response, which is a new step.

That response can be to override what the board recommended. If it is so important, if it is shutting down a whole reactor complex, then that goes to the President.

If the President says we still need that, he can override the board. That is fine. But I am happy to discuss additional language.

Senator EXON. I appreciate that. I know the Senator is happy to do that. I guess one of the overriding concerns that I have here is that here is a case in our Government where we do not agree.

And I would tend to agree with the basic thrust of the Senator's proposal that the Department of Energy probably has not been on top of many legitimate security concerns and many threats that certainly exist out there in the production of some of this material today.

But let me ask this particular question, and maybe it will get to one more point, and then if we have further questions I will submit them to you and you can answer them for the record if you will, Senator Glenn.

Senator GLENN. I would be glad to do so.

Senator EXON. It seems to me that one of the problems with S. 1085 that I would call your specific attention to is that I am not sure that S. 1085, as presently constructed, distinguishes between a major catastrophic accident, such as happened at Chernobyl, and a minor adverse condition, such as a small accidental release of some toxic substances.

I would just call your attention to section 103(g)(6), which empowers the board to look at any event that will have an actual or potential adverse effect on the public health and safety.

Now, that is pretty broad language, and that is something else that we might be able to come to some kind of a compromise on. But those are just some of the concerns that I have.

I will be glad to entertain any more statements that you have to make on this, Senator Glenn. Otherwise, we will excuse you and move on to the next witness.

Senator GLENN. I believe that the language you talk about was amended. The specific language was amended in our markup. The current language is that: "The board shall recommend to the Secretary those specific measures that should be adopted to substantially reduce the likelihood that events will occur at any Department of Energy nuclear facility."

Senator EXON. You have struck the language that I had—is the language still in there?

Senator GLENN. Well, it may have been changed. I am getting one thing in my left ear and one thing in my right ear.

Senator COHEN. I would submit it is hard to make recommendations about safety and say this will cause an actual threat to society unless the event takes place. I see nothing wrong—in fact, I think it is laudable that we are saying this potentially has a catastrophic impact upon people.

So you cannot say that only actual catastrophic results. You are waiting for the accident to happen, and then looking backwards.

If I could just finish, Senator Glenn. It seems to me that, without getting partisan about this, you have been leading a very significant effort on budgetary matters and you have justifiably been critical of some of the practices of the administration in terms of deferring the economic disaster that faces all of us with the large deficits.

A trillion dollars has been added to our national debt in the past few years, and you and others have been, I think, raising your voices saying, Mr. President, you have not focused on this.

This is comparable, but not really comparable. It is comparable in the way in which we have handled it. We have been producing nuclear power without regard to how we would dispose of the waste.

We are producing nuclear weapons in facilities that are unsafe at any speed or level. We keep deferring the consideration because we cannot or are unwilling to pay for it.

So I think this is one small step to force any administration to say: Mr. President, we are not going to let you push this off as you have the deficit, David Stockman notwithstanding. We are not going to let you push this off to the future, because one accident—and you do not have to worry about national security considerations any more.

One major accident and I guarantee you there will be a movement in this country to shut them all down. And that is the concern we ought to be addressing: How do we prevent that from taking place?

And if you are concerned about—some of you are not concerned, but—about the nuclear freeze movement in terms of what was taking place a few years ago, it will be a minor rally compared to what will happen if we have one of these major accidents.

So I want to put my voice as strongly as I can in support of that independent review board and force us, force us and the administration, Democratic or Republican, to say that we have got to deal with it, Mr. President, if you want to tell the American people that they can rest assured that we are dealing with the issue or it is too minimal to be concerned about.

Then we want him to be forced to do this publicly and on the record, rather than simply defer and defer and defer and say there is no problem.

Senator WIRTH. Would the Senator yield?

Senator COHEN. I yield back my time.

Senator WIRTH. I would just like to add, if I might, Mr. Chairman, to what Senator Cohen says related to our national security. It seems to me that we could have on our hands a major national security set of concerns if the public becomes outraged by an incident occurring.

And I think that that could happen a lot sooner than later. It could happen even without the kind of major catastrophe that we are talking about.

Let me give you an example. We had some 15 years ago a burn at Rocky Flats, a release into the atmosphere at Rocky Flats. And that occurred at a time before there were a lot of homes around Rocky Flats. That occurred at a time when people were relatively innocent about this.

I would suggest that if something like that were to occur again, Senator Glenn, if we were to have some incident, which is a relatively minor release compared to what we are talking about in the N reactor in Chernobyl, a relatively minor release, that the reaction in that community would be so strong that people would be saying in a variety of places, shut it down.

Similar to that, if we have a major problem related to transportation, of which we saw the beginnings of a potential accident when that train wrecked next to the Columbia River and we saw some small releases going into the Columbia—what would have happened if a whole car had gone into the Columbia River? And that was a minor accident.

It seems to me that we do have a potential disaster for our national security waiting to happen here, and that we have got to address this rapidly. We have got to break into this cycle.

I think that this is an important and first step toward breaking into the cycle of neglect that we have seen for a long, long time, and that is neglect that affected the previous administration as well as this one. But it has accelerated.

The problem is getting geometrically worse and worse and worse, and I would just urge you, Mr. Chairman—and there may be language problems in Senator Glenn's legislation, and maybe those can be worked out. But the kind of effort with real teeth that Senator Glenn has built into here is the beginning of the kind of prophylactic effort that we ought to be making.

And I commend you, Senator Glenn. And I thank you very much for addressing this in this hearing, Mr. Chairman, and hope that we can move expeditiously to take this step and then a series of others.

Senator GLENN. Thank you very much.

Mr. Chairman, could I address your comment a moment ago? You two have done so well, I hesitate to say anything else.

Senator EXON. Are there any other cosponsors who wish to be heard?

Senator GLENN. The chairman was introducing the question a moment ago about what level the board should be concerned about, and I think there is a pretty good answer we have out of our experience over the last few years. Should they be concerned about a particular valve, even, one particular valve?

And I would not restrict—the answer to me is yes, and I think we have some historical reference we can make as to why that was important. So I would not in any way restrict their ability to look at any part of the system or the process or anything.

And the valve I am talking about was at TMI, Three Mile Island. That accident happened, as I recall, because one valve stuck and then the reaction that was taken to that one valve that stuck was not proper, and that resulted in the whole Three Mile Island accident and the closest we have ever come to an absolute meltdown, China Syndrome nuclear disaster in this country.

That was over one single valve. Now, I do not know whether anybody inspecting that better could have caught that or not, but I would not want to write legislation that restricted them from looking at any level they wished to investigate.

Senator COHEN. Mr. Chairman, could I also add one other thing about the—maybe even the irrationality of a response for what might be seen as something of a major incident and might in fact be a minor one.

For example, to go back to the parallel on the economic rollercoaster we are currently riding right now, the Democrats are being blamed for the crash of the stock market a couple of days ago.

One of the allegations that was made was, well, the Democrats are being blamed because these are the folks who are trying to raise the taxes in order to narrow the deficit, which everyone says is the cause of major economic problems. We had one of our colleagues, Senator Heflin, in a headline story in his State being blamed, that his vote against Judge Bork caused the market to go plummeting.

Once you get into a situation where you have been stretched out over a period of years not dealing with an issue and something takes place, it does not necessarily mean a rational reaction, but a rather irrational one, and I think that is what we are heading for in terms of dealing or not dealing with this issue.

We have been postponing it. Something is going to occur which is going to set a spark which will really impact very negatively upon the national security of our country.

Senator EXON. Well, let me just sum up by saying——

Senator COHEN. You want to explain your position on the crash of the stock market, as the leader of that effort to reduce that deficit?

Senator EXON. No, I do not have any money in the stock market. I look at it about the way I look at the World Series. Although I have a keen interest in how that comes out, I am not directly involved.

I would just like to say that I think the issue should not be framed with the idea that if you are for the Glenn proposal then you are for adequate safety in our nuclear facilities, and if you are against it you are not.

And I do not think that that is what my colleagues are saying. But I am afraid that is the way the debate is going on this.

Specifically, Senator Glenn, I think this is the latest copy. Section 103, subsection (g)(6), requires the right of the board to recommend specific measures designed to substantially reduce the likelihood of actual or potentially adverse effects impairing public health and safety.

I would just simply say that one of the other concerns that I have, and I said earlier I am not sure that we have done enough in this area, is that somehow we do not trust the Department of Defense, which is part of our Government. Somehow we do not even trust the President of the United States, who appoints the head of the Department of Energy. Somehow we do not trust them.

So we always go to an outside group of experts. Somehow they are going to solve all of these problems. I am not sure that that is necessarily the answer, but I remain open-minded enough to say this legislation might still be all right.

I have no quarrel with the direction of the legislation. I have some potential quarrels with the way it is addressing the problem, and maybe those can be resolved.

If there are no further questions, I want to thank my friend and colleague, Senator Glenn, for coming over and testifying.

Senator GLENN. Thank you very much. Just one final word, Mr. Chairman.

No one questions anybody's wish for nuclear safety. The question is how we get there. I do not want to frame this that those who favor this legislation are in favor of safety and the rest are not in favor of safety. That is the furthest thing from my mind with this.

It is a question of how we get there. We have had a lot of experience working with DOE's plants around the country. We have looked into this on the Governmental Affairs Committee with a whole series of hearings and with 21 GAO reports and the GAO are going to give their own testimony.

We have a tremendous background of information on this, and we think this is the best way to go. But no one questions the desire of all of us to have a safe nuclear program.

Senator EXON. Thank you very much, Senator Glenn. We will have some additional questions that we will submit to you for the record so we can complete the record, and we would appreciate your responding at your earliest possible convenience.

Senator GLENN. I will respond promptly.

Senator EXON. Thank you, Senator Glenn.

We are pleased to have with us this morning, Mr. Peach, whom we know has done a lot of work in this area with the GAO and has conducted extensive analysis of the DOE's defense nuclear facilities, and this analysis has formed the basis for many of the recommendations in S. 1085.

As you know, the matter before us today is on Title I of S. 1085 only. Thus, we hope that you would direct your remarks principally to Title I.

The committee strongly supports the establishment of an independent oversight board for DOE defense nuclear safety. We welcome the efforts that have been taken toward achieving that goal. Mr. Peach, would you take your place at the witness stand.

What we are most concerned with is developing the effective oversight mechanism for DOD nuclear safety. We are thus interested in your views not so much on the general goal of nuclear safety, which we have talked about a great deal here this morning and we all agree with, but on the concrete mechanism that would be used to implement this goal.

We certainly welcome your analysis of this critical and important matter. I know you have a statement that I have had a chance to review briefly. We accept that statement in full for the record at this time without objection, and I would appreciate very much if you could summarize in any appropriate manner that you see fit at this time.

Welcome, Mr. Peach.

## STATEMENT OF J. DEXTER PEACH, ASSISTANT COMPTROLLER GENERAL, RESOURCES, COMMUNITY, AND ECONOMIC DEVELOPMENT DIVISION, GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY KEITH O. FULTZ, ASSOCIATE DIRECTOR FOR NUCLEAR AND ELECTRICITY

Mr. PEACH. Thank you, Mr. Chairman. I would be pleased to summarize, and we appreciate the opportunity to talk with you today about this important issue because we believe we have some views that we hope will be useful to the committee as it deliberates and acts on this piece of legislation.

I have with me at the table Mr. Keith Fultz, who is the Associate Director in my Division of the General Accounting Office and is basically responsible for our nuclear-related work and has testified on a number of occasions on issues related to the ones before the committee today.

I will focus on Title I, which is looking at a nuclear safety board for the purpose of providing independent oversight of DOE's nuclear weapons complex.

I think it has been recognized here this morning that everyone knows these facilities are vital to the national defense, but they also know that it is a very potentially dangerous operation that requires appropriate attention to safety and environmental concerns.

Let me start first and just paint a very broad perspective of this issue and the problems that I see that your committee faces about the nuclear weapons complex. It is at a very important juncture.

As has been noted this morning, many of the facilities are very old and are operating beyond their expected life. That means that you are facing decisions as to whether you will refurbish these facilities or build new ones, and either way it is going to cost billions of dollars, possibly tens of billions of dollars, before that entire effort is over.

There are significant unresolved safety and environmental problems that exist at many of the facilities, and correcting them is likely to require tens of billions of dollars. And DOE's public credibility regarding how it deals with the safety and environmental problems in my view is low.

One of the things we called for when we tried to frame our testimony on this issue before Senator Glenn was for the Department of Energy to prepare an overall strategic plan dealing with facility issues, dealing with safety issues, and dealing with environmental issues as to what needed to be done to bring the nuclear weapons complex up to the point that we could have satisfaction on all of these areas. We believe that Congress needs such a plan. Your committee will need such a plan to prioritize what is most important and how it can be effectively dealt with, because there is probably going to be more on your plate than you would like to see there, and priority-setting will become very important.

Senator Glenn referred to the 21 reports. We have been in this issue of independent oversight since the late 1970s. We are not new to this area. We have been calling for independent oversight of DOE's facilities and had doubts about whether DOE could both carry out the job of meeting production and other needs and at the same time be completely self-regulating, particularly in an area like this.

Why do we feel that? Let me cite some examples from the work. One of the areas that we have focused on over the years is something called the safety analysis reports. Those are DOE's own reports that are designed to assure itself that it is operating in a safe manner.

When you look consistently over the years, you find out that they have not even completed those reports for many facilities, the standards being applied vary widely for different facilities, and significant differences exist, without good explanation, between what is being applied to the DOE facilities and what may be applied to commercial nuclear plants. This gives you some lack of good feeling about how well DOE is carrying out even its own oversight responsibilities over the years.

More recently, if you look at the N reactor situation that has been referred to, the Roddis panel findings, I would suggest to you, were not necessarily all new. Many of the findings of the Roddis panel highlighted as reasons for concern about the N reactor were on the books, having been turned up in internal contractor or internal DOE studies, but they had not been acted on. So they had been laying there for a number of years for something like a Roddis panel to turn up.

If you look at the Savannah River reactor that has been referred to and the cracks in the reactor, what I would find disturbing about that was the fact that they were not even using state-of-the-art techniques to detect cracks in reactors, such as required normally in commercial reactors. Something in the process says maybe we are not doing all of the things that we should be doing.

The power reduction at Savannah River—again, was caused by something that had been going on for a long period of time. The emergency core cooling system was not adequate to deal with a severe accident. These problems have led to a situation where DOE must be concerned for the complex. With the shutdown of the N reactor because of safety problems, long on the books but not dealt with, and the reactor problems at Savannah River, DOE has about 30 percent of the productive capacity operating that was operating before these problems were manifested and reactors had to have adjustments made or shut down to deal with the problems. So that is a concern from the production capacity standpoint.

In another area of Savannah River, when you look at incident reports, which are things required to be filed when there is some unusual occurrence at the reactor, we found a history and a record of incident reports related to safety issues that were unresolved for years at Savannah River. They did not have a good system for following up and making sure these problems had attention paid to them and were resolved.

Now, I think DOE has made some progress, particularly under Secretary Herrington. As I said, I have been in this area for some years, and I think Secretary Herrington has paid more attention to the safety and environmental concerns there than had been paid previously. He established the position of Assistant Secretary for Environment, Safety, and Health (ES&H). However, it is not statutorally established; it could be changed in the future. ES&H does not have on-site people down at the sites to do inspections. There is some question about just exactly what their authority is with respect to those kinds of problems in the Department. But there have been actions that have been taken.

I would suggest that one of the reasons that you see something like a Roddis or a National Academy of Sciences panel coming in to look at reactors after the Chernobyl problem has been DOE's own concern for its credibility.

Let me deal with one other area that I would like to, rather than talking so specifically about S. 1085. And that is what we see as key elements that should be present in any kind of independent oversight—criteria which you can use to judge approaches that you might want to use.

Number one is independence. We believe that to be independent it needs to be set up structurally distinct and separate from DOE. We think that type of action is needed to prevent the conflict between programmatic and safety goals over the long term, of which I think there have been more than enough examples cited that have occurred in the past at DOE facilities.

It needs to be technically capable. It needs to be able to understand the design and the safety ramifications of the DOE system, and it will need that expertise both at the top level, and it will need it at the staff level.

It needs the ability to perform the reviews as needed, based on their judgment. That can range from annual day-to-day oversight at a facility if they believe it is needed to have working knowledge of DOE's own internal controls and systems. Judgments would have to be made as to how much they can rely on DOE's internal controls and systems or make recommendations to improve them.

It needs authority to require action on its recommendations or findings. That authority does not necessarily mean that it is mandatory, as has been referred to. It means accountability where DOE would be required to respond as to how they will react to the recommendations. DOE would implement them, or have a rationale for why it cannot move ahead on them.

We believe that the findings and the recommendations, unless they need to be classified for national security reasons, should be available to Congress and to the public. We think that is an effective measure of oversight, because if you have areas where recommendations are not well-found in DOE's view, and they do not want to move ahead on the recommendations, then their rationale for that should be able to stand public scrutiny.

The Nuclear Safety Board proposal in S. 1085 does meet those key elements. And we think that whether you look at that bill, whether you see yourselves ultimately making some adjustment to that bill, or looking at other approaches, we think those are at least important criteria to consider in any kind of approach that you put forward.

There are a couple of observations that we would make on clarifications to the bill that we mention in the testimony, at least from our background and experience. One would be on the review of the safety analysis reports. Those are not mentioned specifically in the bill. The safety analysis reports are DOE's own mechanism to assure the safety of their facilities.

We believe one thing that could be important is to require the board to make a review of the safety analysis reports for facilities and see if there is any criticism or problems that they see with what DOE has done. That would have the board making the best use of what DOE itself is doing, and then building from that.

Second, there is an issue with respect to how frequent the board may evaluate the implementation of health and safety standards that could be clarified. We think it would be useful, because there are so many facilities.

I think it was mentioned earlier there are 137 different facilities. The board is not going to be able to inspect everything. They will have to set priorities.

And we think it would be useful for Congress to receive an annual report that would show the status of investigations that had been done by the board, recommendations that they made, actions taken by DOE or areas where they are not taking actions, and what their plans were for future reviews. This would give the Congress some mechanism for being aware of just what the status of the board's activities and work is on a continuing basis. Those are a couple of areas where we would suggest clarifications.

As I stated, we think S. 1085 does meet the criteria that we have laid out, and if you do adjust the bill, or you look at other alternative approaches, we believe those are useful criteria to consider.

We would be pleased to try to respond to your questions, Mr. Chairman.

[The prepared statement of J. Dexter Peach follows:]

## PREPARED STATEMENT OF J. DEXTER PEACH, ASSISTANT COMPTROLLER GENERAL RESOURCES, COMMUNITY, AND ECONOMIC DEVELOPMENT DIVISION

Mr. Chairman and members of the Subcommittee:

We are pleased to be here today to provide our comments on the proposed Nuclear Protections and Safety Act of 1987 (S. 1085). Our testimony today will focus on Title I which establishes a Nuclear Safety Board to oversee DOE's nuclear facilities. These facilities play a vital role in the nation's security by developing, producing, and testing nuclear weapons material. When considered together, these facilities make up DOE's nuclear defense complex, probably one of the more potentially dangerous industrial operations in the world. Therefore, special care and attention must be taken to ensure that the complex operates in a safe and environmentally sound manner.

GAO has a long history of supporting the need for independent oversight of various aspects of DOE's nuclear facilities. Many of these facilities are old, some are already operating beyond their expected life, and DOE must decide whether to refurbish them or build new facilities. Moreover, there are significant unresolved safety and environmental problems at many of these facilities. Billions of dollars will be needed to address these problems. The scope and importance of these concerns caused us not only to reiterate our positions on the need for independent oversight, but also to recommend that DOE develop a strategy for its defense complex. This strategy would define the universe of problems DOE faces and present an action plan with timeframes and cost estimates for upgrading or building new facilities. Development of this strategy combined with effective oversight should help to assure the Congress and the public that these facilities, whether refurbished or new, will continue to meet defense needs while operating in a safe and environmentally sound manner.

We believe that for any oversight approach to be effective in ensuring safety, it should have five key elements:

-- independence

-- technical expertise

-- ability to perform reviews of DOE facilities as needed

-- clear authority to require DOE to address the organization's findings and recommendations

-- a system to provide public access to the organization's findings and recommendations

Mr. Chairman, the proposed legislation creating a Nuclear Safety Board addresses each of these elements and therefore has the potential to be an effective mechanism for oversight of DOE's nuclear facilities. We also believe that these elements would serve as useful criteria in assessing any proposal that the Congress may consider.

Let me briefly describe our past positions on independent oversight, the types of problems we have identified in the safety area, and then describe the five key elements and how the Board meets those elements. In addition, we have some observations which we believe should be considered as the bill moves through the legislative process.

GAO'S PAST WORK

We have a long history of recommending oversight of DOE operations. In a 1981 report, we pointed out that one of the basic, underlying causes of shortcomings in DOE's safety process was its structure within DOE.[1] In that report, we argued for a separate office within DOE specifically set up to oversee safety matters within the department, and we stated that the office should report to the Under Secretary of Energy. Although DOE originally disagreed with our recommendation, in September 1985, it established the Office of the Assistant Secretary for Environment, Safety, and Health, that reports to the Under Secretary. We believe that DOE's action, in effect, adopted our 1981 recommendation.

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[1] Better Oversight Needed for Safety and Health Activities at DOE's Nuclear Facilities (EMD-81-108, Aug. 4, 1981).

Also in the 1981 report and again in a 1986 report, we highlighted the need for outside, independent reviews of safety analysis reports--important documents which are designed to show that DOE facilities are safely designed, constructed, and operated. In response to our 1986 report, DOE believed that its own Office of Assistant Secretary for Environment, Safety, and Health provides sufficient independent review.[2] At that time DOE stated that

> ". . .an additional level of oversight, over and above that already existing under the guidance of the Assistant Secretary for Environment, Safety, and Health, would not provide any additional assurances of the safe operations of DOE facilities. . ."

Our work on safety matters at DOE facilities over the years has strengthened our position on the need for this oversight by raising serious questions about both the safety of individual facilities and DOE operations as a whole. For example, during the Senate Committee on Governmental Affairs hearings in March of this year, we disclosed that DOE's Savannah River Plant reactors were potentially unable to cool the core in the event of a serious accident. Because of this safety concern, DOE's contractor at Savannah River reduced the operating power of the reactors in the fall of 1986. After the hearings, DOE further reduced the operating power because the National Academy of Sciences, which at DOE's request reviewed its reactors, felt the initial reduction was not sufficient to assure safety.

At that same hearing, we again highlighted the need for independent oversight as well as for DOE to develop a strategy for its defense complex. We recommended to the Secretary of Energy that DOE develop an overall strategic plan that sets forth the projected facility requirements for continued nuclear weapons production; a comprehensive picture of the environmental, safety, and health issues facing DOE; and solutions to resolve them.

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[2] Safety Analysis Reviews for DOE's Defense Facilities Can Be Improved (GAO/RCED-86-175, June 16, 1986).

In addition, during hearings of the Senate Committee on Governmental Affairs on S. 1085 in June 1987, DOE endorsed the concept of outside independent oversight and provided the department's views on various issues the Congress should consider in structuring that oversight.

## KEY ELEMENTS OF EFFECTIVE INDEPENDENT OVERSIGHT

As I indicated at the outset of my statement, there are five elements that should be incorporated into any approach for independent oversight. Let me briefly discuss each of these elements and why they are important.

Independence means the organization must be structurally distinct and separate from DOE. This is important so that the organization is visibly removed from DOE's influence in funding, staffing, and setting of safety agendas. Only in this way can conflicts between DOE's programmatic and safety goals be prevented. In the past, we have pointed out that such conflicts can and do occur. For example, during the 1970s, DOE considered closing the Fernald plant in Ohio. As a result, it did not make capital improvements and equipment became obsolete. In the early 1980s, DOE's production goals increased, putting a strain on the plant's resources. According to DOE's own documents, Fernald's management emphasized production over worker safety and health concerns.

The second element is technical capability. Any oversight organization must have the technical knowledge and capability to fully understand how DOE facilities are designed and operated and what the safety ramifications are of their operation. This is particularly important in overseeing the unique facilities and operations that DOE manages. Such expertise is necessary so that sound safety assessments are made and so that the organization is not too dependent on DOE's information for developing its own findings and recommendations. This technical expertise must exist not only at the top level where decisions are made, but at the staff level where detailed analytic work is performed. Sufficient staffing is also important so that the technical staff is not limited to cursory reviews.

The organization should have the ability to perform reviews of DOE facilities as needed. These reviews could range from an annual review to continual day-to-day oversight depending on the nature of the issues being addressed. These reviews are important to maintain a working knowledge of DOE safety issues and to assess DOE's response to their recommendations. The organization's staff will also develop a better understanding of how DOE operates on a continuing basis rather than on a one-time or sporadic basis. Therefore, the organization could immediately respond to safety concerns. An important factor in the organization's ability to perform reviews when needed is clear access to DOE facilities and records. Without this access, timely and complete assessments may not be possible.

Next, the organization should have the clear authority to require DOE to address the organization's findings and recommendations. Such accountability is important so that DOE will seriously consider and act on these findings and recommendations. Without such influence the organization could easily become a DOE "consultant-type" organization, which could be a drawback. For example, DOE established the Roddis panel--an outside group of nuclear experts--to review the safety of its N-reactor in Washington State. This panel raised a number of fundamental issues regarding various safety aspects of the N-reactor and made recommendations to improve its operation. These recommendations were not new to DOE; their own internal studies had already identified almost all of them. DOE was not required to act on the recommendations, but several months after receiving the panel's reports, DOE temporarily shut down the reactor ahead of schedule to upgrade safety systems. While the independent review by the Roddis panel surfaced important issues, DOE was not obligated to implement the recommendations ~~and if not~~, provide its rationale for not doing so to the Congress and the public.

This Committee has taken the position that the N-reactor should be placed in standby and supports the Senate Appropriations Committee, which did not provide operating funds for the N-reactor in FY 1988. DOE has told us that since the House Appropriations Committee did provide funds for the reactor's operation, restart of the N-reactor will hinge on the conference committee providing the necessary operating funds. If the decision is made to restart the reactor, depending on the timing, all of the Roddis panel's recommendations may not be implemented prior to restart.

Finally, the findings and recommendations of the organization, if they are not classified, should be publicly available. This is important so that the Congress and the public can have a better understanding of the problems DOE faces and the risk in operating DOE nuclear facilities. Public disclosure of safety issues as they are identified will avoid piece-meal disclosures, as have happened in the past, and will also keep the Congress and the public fully informed about the condition of DOE's facilities.

In summary, we believe the five elements are important to the establishment of an independent safety oversight organization. If these elements are present, the organization becomes more credible and thus can help to ensure that DOE operations are safe.

## NUCLEAR SAFETY BOARD MEETS THE KEY ELEMENTS OF EFFECTIVE INDEPENDENT OVERSIGHT

We believe that Congressional debate concerning the proper vehicle for outside independent oversight should consider the five key elements we have just laid out. Accordingly, we have assessed the provisions of S. 1085 within the context of these elements and concluded that all five elements were clearly met. In that regard, let me briefly summarize why we believe the Safety Board meets each of these elements.

## Independence

The Nuclear Safety Board is a new organization established by this legislation and is organizationally separate and distinct from DOE. In this regard, the Board will be independent of DOE in obtaining funding and resources, and deciding on its own review agenda. Further, it will also have no operational responsibilities for DOE nuclear facilities. The Board members are appointed by the President, with the advice and consent of the Senate, and a Board member can only be removed by the President. Since there is no link or line of authority between DOE and the Board, it separates those making production decisions from those reviewing the safety aspects of the facilities. Therefore, the Board can take strong positions on the results of its reviews without considering operational needs. DOE would then be responsible for factoring in these needs in responding to any safety concerns raised by the Board.

## Technical capability

The Nuclear Safety Board, as proposed in the legislation, is structured to obtain or acquire the necessary expertise to perform the functions established for the Board. For example, the proposed legislation states that the Board members must be respected experts in the field of nuclear safety. In addition, they must have "a demonstrated competence and knowledge relevant to the independent investigative and prescriptive functions of the Board." Also, the Board is authorized to hire a technical staff and to employ consultants if needed. Further, the proposed legislation would authorize the Advisory Committee on Reactor Safeguards, a technical advisory group to the Nuclear Regulatory Commission, to expand its membership by up to five members and corresponding staff to assist the proposed Nuclear Safety Board in assessing DOE activities.

### Ability to Perform Reviews of DOE Facilities as Needed

The proposed legislation requires the Board to review for each DOE nuclear facility (1) the implementation of health and safety standards and (2) the quality and implementation of all DOE orders governing these facilities. The proposed legislation also provides sufficient flexibility for the Board to review any aspects of DOE's nuclear facilities at any time during the year. The intent is for the Board to have institutional knowledge about the DOE facilities and to be available to review those facilities as often as required. In order to perform these reviews as needed, the proposed legislation states that the Secretary of Energy and all contractors operating DOE nuclear facilities should fully cooperate with the Board and provide ready access to the facilities and information necessary to complete the Board's review.

### Clear Authority to Require DOE to Address the Organization's Findings and Recommendations

DOE must take specific action on each of the Board's recommendations--either implementing it or notifying the Board and the Congress why it is not implementing it. In addition, if DOE chooses not to implement a recommendation that the Board deems important because it will have actual or potential adverse effects on the public's health and safety, DOE must notify the Board and the Congress that the recommendation cannot be accomplished because (1) it is technically or economically infeasible, (2) appropriated funds are not currently available, or (3) the President has exempted the facility from complying with the recommendation because it is in the "paramount national security interest of the United States to provide such an exception." The exemption is effective for up to 1 year, but is renewable upon issuance of a new presidential determination. Further, if a recommendation is not implemented because it was technically or economically infeasible, the President must either support DOE's decision and certify that to the Congress or direct DOE to implement the recommendation. In addition, if a recommendation is not implemented because funds are not available, the facility must be closed unless the President requests congressional funding. Therefore, DOE is forced to seriously consider each and every recommendation raised by the Board, and the President must make a judgment concerning the recommendations the Board believes are important and DOE does not implement.

### System to Provide for Public Access to the Organization's Findings and Recommendations

The legislation states that the Board's recommendations shall be sent to the Congress, and if not classified, made available to the public. This will allow the people most affected by the operations of the facilities to obtain information on the safety of these facilities from an independent reviewer not affiliated with DOE.

## POSSIBLE CLARIFICATIONS TO THE BILL

Overall, the Safety Board, as proposed by this legislation, meets the key elements, therefore, has the potential to effectively oversee DOE's nuclear activities. We do have the following observations which we believe will assist the Congress in fine-tuning the bill.

As I pointed out earlier, the Safety Analysis Reports are intended to show that DOE facilities are safely designed, constructed, and operated. These reports are prepared by the facility contractor operator and require approval by DOE. These reports establish a basis for both the operator and DOE to determine that its facility can operate safely and to conclude that operating the facility does not pose an unacceptable risk to public health and safety. However, we have found that these reports have not always done what they set out to do--some provided little or no comparison to safety criteria, some used different approaches to analyze accidents, and some have not been approved. Given the importance of these documents, we have recommended that the reports on the facilities which involve significant nuclear hazards be reviewed by an outside group to provide independent assurance that these facilities are safely designed and operated. Therefore, while the bill is flexible in allowing for the Board to review these reports, we believe the review function should be highlighted as a specific responsibility of the Board. The Board would review the Safety Analysis Reports and make any recommendations public. DOE, in turn could accept and/or rebut the review. This function may become particularly important as DOE rebuilds its nuclear defense complex.

Another area that needs clarity is the frequency with which the Board will evaluate the implementation of DOE health and safety standards for each DOE nuclear facility and report to the Congress. A prior version of the bill required an annual assessment of each DOE nuclear facility. We understand this requirement was modified because it would be a large undertaking and could require a very large staff. However, by removing this annual requirement, the bill is now silent on how often the Board should evaluate DOE's facilities and report to the Congress on its work. We believe the Board should submit to the Congress an unclassified annual report which describes what facilities and events had been reviewed during the prior year, recommendations made, and actions DOE has taken or has agreed to take. In addition, the report should identify the Board's future evaluations and timetables for their initiation and completion. This will help to insure that all facilities are evaluated in a timely way and maintain congressional and public awareness of the Board's evaluations and recommendations.

## KEY ELEMENTS SHOULD BE APPLIED TO ANY OPTION CONSIDERED

Other bills which address oversight of DOE nuclear facilities are currently being debated in the Congress, and other approaches to independent oversight might be surfaced. DOE told us, for example, that it will be testifying before this Subcommittee to present its views on the workability of S. 1085. We believe that any proposal that the Congress considers--including any approaches posed by DOE--must be analyzed to determine if it meets the five key elements. It is possible that some other proposals may satisfy all of these elements. If that is the case, then other considerations such as cost and the intensity of oversight that Congress believes is needed would enter the debate.

In closing, Mr. Chairman, we believe that S. 1985 clearly includes all five elements we believe important to establish an effective approach to independent oversight of DOE's nuclear facilities. As the Congress debates this and other proposals which exist or may be introduced, we believe that each proposal should be assessed as to whether or not it meets the five elements outlined.

That concludes my testimony. We would be pleased to respond to any questions you or members of the Subcommittee may have.

Senator EXON. Mr. Peach, thank you very much. That was a very good testimony, a very helpful testimony. And I am glad you focused as much as you could on the concerns that we have here.

In prior testimony on S. 1085, you have indicated that the present legislation lacks clarity on the standards the board is to use in assessing the safety of the DOE facilities.

In other words, you feel that S. 1085 has not resolved the issue of what safety standards the board should apply to the DOE facilities. What would be your guidance in that matter?

Mr. PEACH. Mr. Chairman, first I think the board, as it develops its own approach, is going to have to make some judgment about how much it can rely on the actions that DOE takes in this area. For example, let me cite specifics. DOE still has under consideration whether it will have any on-site people under the Assistant Secretary for Environment, Safety, and Health that will be there and will be doing certain activities.

Second, the board should look at these safety analysis reports and see how well they have been together and what they see they need to do to build off of those safety analysis reports.

And I think all of those can be important steps for the board developing its own approach, as it moves into a particular area.

The other thing that is important is that the way the bill has been constructed, I do not see recommendations as being mandatory. The board has to make some judgment as to the kind of recommendation that it wants to make. And the Department of Energy is in the position of responding as to what they will do or not do with that recommendation and having a rationale if they see themselves not acting, whether it is national security, whether it is technical feasibility, or whether it is an economic issue.

Senator Exon. Mr. Peach, just let me say that, to clarify a point once again that I do not want to get lost in all of this, and that is that the issue is not that the board should not consider what it feels are important safety issues, but that it should not seek to impose a no-risk standard, which I think we would all agree even the commercial facilities do not have at this juncture.

Do I take it that in your studies of this, you recognize that there is no ideal solution where we could guarantee that there would be "no risk"? I assume that is true.

Mr. Peach. I do not think there is anything as no-risk in this area. Even one of the mechanisms that the Nuclear Regulatory Commission uses, and I noted in articles that the Russians had indicated after Chernobyl they were going to adopt it, is a mechanism called probabilistic risk assessment.

So you try to understand at least the probabilities of the risks that are involved, and you try to minimize those. The one reason behind that type of analysis is a recognition that there is not anything such as no-risk, or a risk-free environment in this area.

Senator Exon. Following up on that a little bit, has there not been a recent U.S. Court of Appeals case that held under the Atomic Energy Act that the NRC need ensure only an acceptable or adequate level of protection to the public health and safety, but need not demand that nuclear power plants present no risk or harm? Are you familiar with that case?

Mr. Peach. That is correct. I am generally familiar with it.

Senator Exon. Thus, we do not have to oppose a no-risk policy, which is not even in effect today on commercial nuclear reactors. Do you feel that there should be a higher standard of no-risk, or higher standard of safety, depending on how it should be stated, do you think there should be a higher standard for production of material for the national security interest of the United States than there should be for a commercial operation?

Mr. Peach. No. I do not necessarily think so. I think there is a difficult issue to be addressed here in terms of the standards that may be applied.

I think one of the things that the bill asks for is the National Academy of Sciences to do a study looking at the standards that are applied to commercial reactors versus the standards that are applied to the defense production area.

I think that is in there in recognition of the fact that there probably are distinctions that can actually be made. Even if you had a unit like NRC that would take over responsibilities or would be looking at DOE facilities, they would have to consider—can we really apply the kind of standards we apply to commercial reactors to this area? And I think that is a very legitimate question.

Senator Exon. Is it not true from your reading of S. 1085 that it prohibits the board from considering cost constraints?

The board's information would be forced toward continual incremental improvements, rather than facing the larger issues of replacing old facilities. We get caught up in these things, and we are caught up on that somewhat in conference with the House, as of this morning, with regard to the Hanford plant.

How long can we go on with that? I happen to feel, and lean toward the idea, that we have got to move ahead. At best, the most precise patch-up we could do is not going to be adequate for more than 5 years at best.

Do you agree there is a problem on measuring what is acceptable risk?

Mr. **Peach**. If you want to look at the N-Reactor at the Hanford facility, and we have been, and are still involved, in looking at a variety of issues with respect to that facility. I think there is a good reason to have doubt about how long that facility can continue to operate, given its age, given its condition.

The information we have seen would suggest that if you really are looking at trying to operate it to the mid-1990s and beyond, you probably are going to have to spend in the range of $1.2 billion or better.

At least I have heard or seen numbers like that. But I think that even with that, there are questions about whether it is going to be able to achieve the level of operation and operate the way you like to see it operate without safety concerns.

Which throws you into the point of having to consider if it is needed, and appropriately justified. What do we have to look at in the way of alternatives for other facilities?

Senator **Exon**. What was the figure again that you used with regard to Hanford?

Mr. **Peach**. $1.2 billion is the figure that I have seen, and that is about a major refurbishing and upgrading with the idea of trying to extend the useful life beyond the end of the century.

Senator **Exon**. Then we come to the situation, as decisionmakers, that we have to make on the authorization and budget process as to whether the $1.2 billion would best be used to protect and improve that plant from a safety standpoint, or would it be better to use that for the development of a new modern facility that obviously would be built to much higher risk standards.

Mr. **Peach**. Right. And of course, you know, you always get into this business in nuclear facilities. I have seen a lot of cost estimates over the years, and we tend to see them going up before the work is completed. So the $1.2 billion may not do it.

Senator **Exon**. It may be too low. We have made that mistake before, have we not?

Mr. **Peach**. Yes.

Senator **Exon**. Senator Wirth.

Senator **Wirth**. Thank you very much, Mr. Chairman. And Mr. Peach, thank you for being with us, and for your really terrific work over the years.

I have had the pleasure, Mr. Chairman, of working with Mr. Peach in the GAO, and they have done consistently professional and careful and good work.

And I particularly thank you for the work of all of your people on the Rocky Flats issues over the years. I am sure that Senator Glenn's stack of GAO reports included a lot of your work as well on Rocky Flats.

In your testimony, Mr. Peach, you stated, "We believe that any oversight approach, to be effective, should have five key elements." And you listed those in your summary of the testimony.

There has been a suggestion made from some of the people on the outside opposing this legislation that such a board with such a charter would impair the ability of DOE to meet its national security responsibilities.

In other words, the five or six key elements that you mentioned are argued to be independent and mutually exclusive from DOE's reaching its national security responsibilities. Is that going to be the case?

Mr. PEACH. I do not necessarily think so. I have come to the conclusion, after being in this area, that consistently over time it may be the thing that is needed to hold DOE's feet to the fire, through changes of administration, through changes of leadership that will come and go to assure that they are meeting the safety and environmental concerns of operating these facilities.

I have come to conclude that that is important, because if we are not able to provide those assurances, at some point in time there will be a public problem that will occur with operation of certain of these facilities. So I think that is an important element of assuring that they pay appropriate attention.

If I could trace a little history for you, Senator. I said we have been in this area for a good number of years. When we made our first recommendation for independent oversight, the Department of Energy said no thank you, we do not need any independent oversight, we can take care of ourselves. That persisted for about 3 or 4 years.

Secretary Herrington, when he took over and took a look at the situation, I believe, based on information he had from whatever source, concluded this was an area he needed to pay some attention to. There were some problems with these facilities.

And he did agree with one of our recommendations, which is to put somebody in the Department at a level reporting to a high level, looking at environment, health, and safety. But even with having done that, DOE is still not at a point where it has any onsite people that report in that area back to the Environment, Health, and Safety Assistant Secretary. And it is not exactly clear just exactly what responsibilities they have or control they may have in dealing with situations. But that is an improvement.

We still do not think it meets the test of independent oversight. We think that can provide an adequate incentive to DOE to further improve the internal controls it has. DOE will still have an important role. As the operator of the facilities, they and their contractors will have an important role in making sure they are operating in a safe and environmentally sound manner.

And this independent board is only to provide a check that the facilities are operating the way they should be.

Senator WIRTH. I agree with you that Secretary Herrington has really raised the level of concern about this. I think he faces real problems.

On the one hand he has a lot of institutional resistance to attempting to get this kind of thinking built into DOE and built into its contractors. Second, he has got the very real constraint of dollars.

If you are going to move on this issue, it is going to be an expensive proposition. And I think we all have to join together and recognize both of those areas. So I think that this legislation is a first step toward, on the institutional side, getting things to happen.

Mr. PEACH. You made a comment earlier about how quickly DOE may be able to get the information up. I do not want to comment on exactly how quickly.

But I think it is important that they get information to the Congress that will give them a good handle on the scope of the problems that are being faced, and will be of assistance in setting priorities on what it is we need to do to begin to deal with this problem, and to try to have a plan and approach for dealing with it.

Senator WIRTH. How rapidly could they get that information? I do not want to get to that question. Let me ask two other things first.

We talked about independence and the need to break into the production cycle. The assumption has been that DOE has been concerned with its primary mission, which is the production of nuclear material and nuclear weapons.

And, DOE therefore has neglected the health and safety, a lot of the health and safety and environmental issues. That is the assumption that underlies a lot of this, I believe.

If that is the assumption, is there a pretty clear record where that health and safety and environmental neglect has occurred?

Mr. PEACH. Yes. Let me cite a few examples that we think would make that point.

Without going into detail, Senator Glenn gave a fairly graphic example of what occurred at the Fernald plant. That was a plant that in the late 1970s, as production was going down, DOE decided it would not refurbish and do upgrading or other things that needed to be done.

When production requirements went up again in the 1980s, although the plant was in a more obsolete condition, I think health and safety concerns were subverted to try to bring production back up and it led to a number of problems.

I think some of our findings with respect to the Savannah River Plant—the cracks in the reactor; the lack of appropriate testing techniques; and the reactors running for long periods of time without adequate emergency core cooling, then later being brought to DOE's attention—are all examples of those kinds of problems.

I think you have one at Rocky Flats in your area where DOE made an effort to build a new plutonium processing building to take care of some problems at quite a large cost.

For whatever reasons, they had a building that they constructed that was not going to be useable to carry out their plutonium processing activities.

And they are still using the old building, with some upgrading, and are still having concerns raised about the workers that are involved in that area. Those are just some of the examples.

Senator WIRTH. So the kind of independence you are arguing for would presumably force DOE to put a higher priority on the kinds of health, safety, and environmental issues.

And that again is a fundamental assumption of this legislation that is not happening, and we have to force it to happen.

Mr. PEACH. Yes. I think there is a need to provide that type of incentive. As I said, Secretary Herrington has paid more attention in this area. But that does not mean that the same level of attention will be there the next time around, if there is a change.

Senator WIRTH. Or that he would have the help that he needs in that area.

Third, we talked a little about risk. It is my assumption in looking at Senator Glenn's legislation and my experience with standard-setting at Rocky Flats, we are not talking about getting to a no-risk situation. Nobody is unrealistic enough to assume that we can be in a no-risk world.

Rather what we are trying to do is to establish the setting of very clear, understandable technically and scientifically based standards. And second, the enforcement of those standards. And that is what we are attempting to do.

Not to get to a no-risk situation. But rather we are establishing scientifically and technically based standards, one. And second, assuring that those standards get enforced within and around these plants, two. It is not a no-risk situation.

Is my understanding of what we are trying to do accurate?

Mr. PEACH. I think that is correct, that it is not a no-risk situation.

And from what I know about at least the N reactor and the Savannah River situations, where there have been decisions to reduce power, or to even shut down, I think those ultimately were made by DOE for good reason.

For example, if you have some concerns raised about the hydrogen mitigation issue at the N reactor, which has been a factor in the accidents that have occurred at Three Mile Island and at Chernobyl, that was a legitimate kind of concern that needed to be dealt with in terms of safe operation of that facility.

If you look at Savannah River and you have to reduce power because you find your emergency core cooling system is not able to handle the problem in the case of malfunction that could occur, then you are running with a serious situation, and you have to reduce the power levels to bring it back into balance with what your emergency core cooling system can handle.

I mean, those are areas where I think the recommendations even there were directed at fairly major areas, or fairly major risks that would be involved.

Senator WIRTH. We have a parallel one in the emerging beryllium problem and Rocky Flats of setting working standards for exposure to beryllium.

How much exposure is acceptable? In order then for the plant to reach those acceptable standards, the plant is apparently going to have to modify significantly a lot of the working conditions for the workers to be able to meet those standards.

Now, it is, as I understand, pretty well understood what the standards are. But there has been apparently some significant problem in getting the plant to reorganize itself, to put in the technology that is necessary to allow the workers to working conditions that reach those standards.

That is maybe a case study of the kind of thing that could be done by the board set up under Senator Glenn's legislation.

Mr. **Peach**. That is correct.

Senator **Wirth**. Let me ask you a final question, if I might, related——

Senator **Exon**. Senator, your time has been up for 10 minutes. And I want to accommodate you. It just so happens that this Senator has some other obligations.

May I ask one question? Then I will be glad to turn it over to you, and you can chair the meeting. I am not trying to be abrupt with you at all. I am just saying that I have got some constraints that I have to leave, and I have one more question. Can you stay for a few minutes?

Senator **Wirth**. I would be happy to. I just got handed a note.

Senator **Exon**. Thank you. Mr. Peach, let me first say that you are familiar with the fact that S. 1085 creates a three member board.

Now, GAO has always felt that any kind of a board like this should be broad-based. It should have considerable technical experience and expertise in the whole area that we are dealing with.

Given that, and given the fact that the Roddis panel had six members and the National Academy of Science, I believe, had about 16 members. I do not know what the right amount is.

But would you see from your experience how three members would carry the credibility that is necessary from the outline that the GAO has generally held should cover a whole broad area? Could three people do it, in your opinion?

Mr. **Peach**. To give you a qualified answer, yes. I think three could do it. I do not think there is any necessary magic about whether it is three or five or seven.

They do have 100 staff that would be authorized. And I think it will also be important as to the technical capability that is resident with that staff, as well as to what the makeup of the board is.

And I think that, of course, the process of looking at those board members will be important to assure they have the right kind of qualifications.

Senator **Exon**. Thank you, Mr. Peach. And I just would like to say for the record that, in order for our staff to complete action by November 9 under the arrangement that we have made on this, because of our tight schedule, the returned questions that will be asked of you, and we will ask some more for the record, we would need those back by October 30 so we could have that kind of input, which does not give any of us a whole lot of time.

But we would appreciate your returning any questions that we will submit to you in writing as soon as possible. I apologize to you, Senator Wirth. Those are all the questions I have.

I thank you for coming, Mr. Peach. And I will turn the meeting over to my colleague from Colorado.

Mr. **Peach**. We worked hard to get here today, Senator. And we will work equally hard to get those questions returned to you.

Senator **Wirth**. Thank you very much, Mr. Chairman. And I appreciate your forbearance and understanding. This is an extremely important issue. I am delighted that you and the committee are as engaged as you are on the issue.

Senator **Exon**. Thank you.

Senator **Wirth**. If I might, Mr. Peach, I have one area to go back to, which is the dollar issue in your recommendation.

It seems to me first, in response to Senator Exon's question on Hanford, as to whether you do safety or you shift and change and do something new, the unfortunate situation is we probably have to do both.

And that is certainly the situation at Rocky Flats, that we have to make some investment there to make it safer and sounder now, and make some long-term investment about moving parts or all of that facility.

I mean, is that not the inexorable conclusion that we face?

Mr. **Peach**. Well, if I can speak in general terms, there is a kind of equation that has to be looked at and it has to be looked at carefully. The equation would include whatever the definition of requirements is, whatever we think we can reasonably produce and then trying to look at the lead time to bring on a new plant, and whether or not we could get by if we need to move to a new plant.

I have not looked at elements that would go into that kind of equation or thinking. We are currently involved in a number of different studies, still looking at aspects of the defense weapons complex.

One of the things that Senator Adams and others have us looking at is the conversion issue, with respect to one of the WPSS plants and what the implications of that are, for example. That is one alternative to upgrading the N reactor. Of course there is the whole issue of a complete new production reactor, starting from scratch.

Senator **Wirth**. It is my understanding that when this set of facilities was designed and built in the early 1950s, generally the area in which it was done, there were two security assumptions.

One was that we ought to disperse various pieces of the facility around the country for the purposes of making sure that they would not be therefore as vulnerable to bomber attack by the Soviets.

And second, that we ought to have a nonnodal situation, that we should have duplicates around the country, so that if one part of the chain went out, we would have another. Those were two assumptions, and consequently we see a set of facilities that was dispersed, and we see generally duplicate facilities around the country. Is about correct?

Mr. **Peach**. I think both of those assumptions are correct, with respect to why they laid out the complex the way they did.

Senator **Wirth**. And that those assumptions are probably no longer valid. That that kind of dispersion, you know, we do not do any more in the day and age of missiles. Correct?

Mr. **Peach**. Well, you may be getting a little bit out of the area that I should speak unequivocally. What I would say, when we call for this plant, it is apparent many of these facilities are very old.

And it is going to be expensive to rebuild or refurbish, aside from taking care of the environmental and safety problems. So it is the appropriate time, if you are going to have to look at doing that to say, how should we configure this complex.

Do those assumptions still hold valid that led us to configure it the way we did with this wide dispersion? And I think that is an issue that needs to be addressed.

Senator WIRTH. And then added to that is the increased understanding of the problems of transportation.

That even if we were to make all of these facilities as safe and sound and secure as we could, we then have the problem of transporting a lot of material from, say, starting at Savannah River all the way through the chain until it ends up at Pantex and gets delivered to the Defense Department. Correct?

Mr. PEACH. That is right. There is a great deal of transportation that occurs today.

Senator WIRTH. And the kind of crisis problem we are talking about mentioned by Senator Cohen, and that I reflected on as well.

An incident could occur in transportation of this material that could be severe enough to trigger the kind of public reaction that Senator Cohen mentioned and that you mentioned.

Mr. PEACH. Yes.

Senator WIRTH. So transportation becomes another one of the variables in this that has to be controlled. And maybe moving up the scale as the dispersal national security arguments move down the scale in importance.

Mr. FULTZ. If I could add, Senator, once we start transporting the nuclear waste to the repository or to a monitored retrievable storage facility, that is also going to increase transportation problems.

Senator WIRTH. We are particularly aware of that as well, because if that is done by truck a lot of that has to run right through the I-70 corridor, which goes right through the middle of the Rocky Mountains and is a very narrow corridor. So we are very sensitive to that, Mr. Fultz, and I appreciate your mentioning that.

With all of that as background, it is almost as if you are on the verge of saying a hunch as to what we ought to do, Mr. Peach, in terms of refurbishment or building new facilities.

It sounds to me like you are about to say, what we have got to do is reconstruct this thing. Is that right?

Mr. PEACH. It is a complete rethinking of the strategy.

Senator WIRTH. And that is a little bit short of saying, a complete rethinking in strategy is a little bit short of saying we have to rebuild it?

Mr. PEACH. That is right. And I am saying I do not know enough to say whether you can rebuild parts and have others fit in. But that needs to be addressed.

The other thing that needs to be looked at here is that we really do not know the scope of the environmental problems at some of these reservations that will manifest themselves there because of lack of attention over the years.

It is one of the problems. I mean, DOE really needs to do work just to define the scope of the problems that are involved. And in many cases, and we have said before at places like Savannah River and Hanford, you may be looking at a long-term care kind of situation. What type of cleaning up is possible there?

Senator WIRTH. What do you do with Rocky Flats? If they moved out of Rocky Flats, what would you do with it? You could not convert it into a lot of day care centers, I do not think.

Mr. **Peach**. That is right. So you have long-term care considerations that factor in with sites or facilities you have now.

Senator **Wirth**. Great antinuclear mothballs that we could put these plants in. It is a real problem. I realize that.

But going back again to the question about refurbishing or rebuilding and getting a handle on that set of questions. I had suggested I would suspect that we could get a fix on that a lot faster than next July.

I think a lot of that data is out there. And it was my understanding from the earlier discussion that that is when DOE was going to come back to the Congress, was July 1988, with a fix or with a plan. Is that correct?

Mr. **Fultz**. They are going to have an interim report to Senator Glenn at that time, yes.

Senator **Wirth**. In July 1988?

Mr. **Fultz**. That is correct.

Senator **Wirth**. I bet you that slips. Is it possible to get at least a first cut at those numbers earlier than that, do you think?

Mr. **Peach**. I suspect DOE is going to have to address that. I think that report is supposed to cover safety and environment as well as facility issues.

A guess would be that you might be able to get information on facility and some of the safety questions more quickly than you can get more complete cataloguing of all the environmental questions.

From our work in the environment, there is just a lot of areas where they have not done the basic spade work to uncover and determine what the environmental problems are.

Mr. **Fultz**. You are correct, Senator. Most of the audit work in the environmental area that DOE needs to complete before preparing this report has been done.

In fact, it is our understanding that virtually all of the audit work has been completed.

Senator **Wirth**. Therefore——

Mr. **Fultz**. Therefore, the basic information is available or certainly it has been gathered.

Senator **Wirth**. The basic information about what?

Mr. **Fultz**. The extent of the problems, the potential costs in improving those problems or estimated cost of cleaning up the facilities.

For example, for about half of those facilities we understand preliminary environmental reports have been developed. We have, to my knowledge, not seen any of those. It is possible that one of my staff has some detail on a particular audit.

But we have not analyzed the preliminary reports in detail. We will be doing this as part of other congressional requests.

Senator **Wirth**. What I would like to do is see if there is some way in which we can get this into the debate up here as we go into this next authorization year, to help us understand the full extent of the nuclear weapons complex's problems and needs as we look at all of the other costs of the defense programs.

You know, as we are looking at the so-called bow wave that we hear so much about, I mean there is a hidden, not bow wave, but there is a hidden fleet out there, which may be in the form of costs of the weapons complex, which ought to be understood as we are looking at what do we do with more aircraft carriers or other new weapons systems and so on.

Mr. **Peach**. I think that is correct. I am aware that you had some discussion with the Comptroller General when he was up testifying earlier talking in total about defense expenditures.

He discussed this particular area as one that so far we really do not have a good handle on and are not able to factor that into the debate, when we talk about what are the important things that we need to do in the defense arena. I think that is important.

Senator **Wirth**. As I understand from Mr. Fultz, and from my own assumption, having dealt with a lot of these issues over a long period of time, there probably is a lot of information out there that could probably be put together and be done this fall in a package that would not be 100 percent accurate, cross every "t," dot every "i," but certainly would give us a sense of the magnitude of the problem. You know, what is the max and what is the minimum, so people could understand that what comes down the line to this committee and to the Appropriations Committees is a big ticket item. How big is the ticket?

And the second issue would be, what generally should we be thinking of? Should we be thinking about a repair operation? Or should we be moving toward a total replacement operation?

You know, building a new node. And just say we are going to build the one facility, and have it be a node. And that is going to do the whole load. Do you have any reaction to that?

Is that a possibility that we could get that kind of information?

Mr. **Peach**. You may know more about what is available.

Mr. **Fultz**. DOE has completed the audit work in the environmental area. I would suggest you might raise that question with them when they come here next week, as to what extent they could expedite the reports.

We would be glad to review copies of the reports, if you would like. But we have not had access to them at this point.

Senator **Wirth**. Well, again, you all have been here for a long time, and I greatly appreciate it, as does the committee. And as ever, Mr. Peach, we appreciate the care and professionalism that goes into your work, and that of GAO.

And I mentioned that to Mr. Bowsher when I was talking to him last week. Please convey to him and to the other officers of GAO our deep appreciation for the work that you do in the face of all of the demands that we all put on you.

We are very respectful and very appreciative. Thank you both very much.

[Questions for the hearing record with answers supplied follow:]

## Questions Submitted by Senator J. James Exon

Senator **Exon**. What DOE facilities do you think should be covered by the safety oversight legislation? Please specifically identify each facility you think should be included, the reasons for including it, and identify whether existing legislation now covers such facilities.

Mr. **Peach**. The proposed legislation (S. 1085) specifies that the Board oversee safety at each Department of Energy (DOE) nuclear facility, but does not specify by name or location the facilities to be covered. DOE has some 127 facilities in 22 states, including national laboratories that develop nuclear weapons, reactors that produce nuclear material, and facilities that process the material and fashion it into nuclear warheads.

Our testimony before this and other congressional committees, as well as our past reports, highlight the environmental and safety problems at DOE's nuclear defense complex. Given the magnitude and significance of the problems, we believe it would not be desirable to limit the Board's scope and accordingly all facilities should be covered. However, we believe that the facility reviews should be prioritized to ensure that those facilities with higher potential to endanger the health and safety of workers or the general public should be reviewed first. Therefore, higher priority would go to high hazard facilities such as the production reactors and nuclear materials processing facilities.

How the facilities are prioritized for review would be reported to the Congress as part of the unclassified annual report we believe the Board should submit to the Congress. As our testimony before your Subcommittee pointed out, this report would identify the Board's future evaluations and timetables for their initiation and completion. It would ensure that all facilities are evaluated in a timely way and the high hazard facilities are reviewed first, and maintain congressional and public awareness of the Board's evaluations and recommendations.

Concerning existing legislation, the Atomic Energy Act of 1954 (42 U.S.C. 2140 et seq.) established the Atomic Energy Commission and made it responsible for making nuclear material for defense programs and provided the Commission regulatory control over nuclear defense facilities. These responsibilities were subsequently transferred to the DOE pursuant to the Department of Energy Organization Act of 1977 (42 U.S.C. 7101).

While DOE is not mandated to obtain independent reviews of its facilities, it has the authority to do so and has done so on several occasions. For example, under terms of an interagency agreement with DOE, NRC performed a safety review of the Fast Flux Test Facility, an experimental reactor, in DOE's civilian nuclear research and development program. NRC also reviews the designs of DOE's naval reactors. Recently, the Secretary of Energy requested a group of experts, known as the Roddis panel, to review the N-reactor. He also requested the National Academy of Sciences to review DOE's reactors, including the production reactors at Savannah River, S.C., and the N-reactor.

Since 1981 GAO's reports and testimonies have called DOE's self-regulation into question because of the numerous environmental and safety problems that GAO and others, including the Roddis panel and the National Academy of Sciences, have found. These problems, coupled with continuing conflicts between DOE's production and safety goals, have led GAO to recommend independent oversight of DOE's nuclear facilities. We believe that independent oversight will enhance the safe operation of DOE's facilities by improving the checks and balances already in place to ensure safety.

In addition, the position of Assistant Secretary for Environment, Safety, and Health, is not legislatively established. Therefore, although Secretary Herrington has improved safety oversight within the department by creating this position, depending on the focus or priorities of future Secretaries of Energy, this position may lose its importance or be abolished. The fact that DOE's internal safety oversight could be weakened in the future further strengthens the argument for a legislatively established independent group to oversee the safe operation of DOE's nuclear facilities.

Senator EXON. The GAO outlines 5 criteria that should guide the establishment of an oversight board. Is Title I of S. 1085 the only legislation that satisfies that criteria?

Mr. PEACH. Our testimony stated that for any oversight approach to be effective in ensuring safety, it should have five key elements: independence; technical expertise; ability to perform reviews of DOE facilities as needed; clear authority to require DOE to address the organization's findings and recommendations; and a system to provide public access to the organization's findings and recommendations.

Other legislation in addition to S. 1085 has been introduced to address the independent oversight of DOE's nuclear facilities. For example, Title IV of H.R. 783—regulation of DOE facilities by the Nuclear Regulatory Commission (NRC)—provides that NRC will oversee the safe operation of DOE's nuclear facilities. H.R. 2047—Defense Nuclear Facilities Safety Agency Act—establishes a new agency to ensure safety by issuing standards and conducting inspections of and having the authority to shut down DOE's nuclear facilities. In contrast to using organizations outside DOE for safety oversight, S. 748 would establish an Office of Inspector General for Nuclear Programs within DOE.

We believe that other proposals, such as Title IV of H.R. 783, have the potential to meet all five elements. Once the elements are met, as we stated in our testimony, other factors such as intensity of oversight and cost must enter the debate on the appropriate structure for independent oversight. For example, if H.R. 783 were enacted, NRC may feel obligated to act in a full regulatory mode, which Congress may not intend or think desirable. Under this regulatory framework, some of DOE's facilities may not satisfy NRC standards. NRC requires its commercial reactors to meet all standards. Production from a DOE reactor, on the other hand, might be needed for national security reasons and therefore operation must continue even though the reactor does not meet NRC standards. If the latter happened, NRC could be accused of holding the commercial sector to tighter standards than DOE.

Cost may be another consideration. On the surface, it appears that since NRC is an established entity, it would be a less expensive method of oversight than establishing a new entity. However, it appears that NRC does not want the responsibility for overseeing DOE's nuclear facilities primarily because of staffing and cost considerations. For example, NRC believes that its staff does not currently have the expertise to review the DOE facilities because of the differences between those facilities and the commercial nuclear facilities that NRC regulates. NRC also argues that it would have to hire additional staff so that its regulatory responsibilities to the commercial nuclear industry would not be affected.

With regard to cost, although NRC has not done a detailed cost estimate, an NRC official told us that if NRC had regulatory responsibilities similar to what they were given for the Clinch River Breeder Reactor, oversight of each type of DOE facility might cost as much as $14 million per year for the first two years. Based on its estimate and given the various types of facilities (i.e., reactors, reprocessing, enrichment, etc.), the total estimate for such NRC oversight could be in the tens of millions of dollars.

H.R. 2047 and S. 748 appear not to satisfy all five elements. We believe that any entity given oversight responsibilities for DOE's nuclear facilities should have the technical knowledge and capability to fully understand how DOE facilities are designed and operated and what the safety ramifications are of their operation. H.R. 2047 is silent on the technical capability of the organization it establishes. S. 748 is also silent on the technical capability needed by the Office of Inspector General for Nuclear Programs which it would establish.

[Whereupon, at 12:47 p.m., the hearing was adjourned.]

# SAFETY OVERSIGHT FOR DEPARTMENT OF ENERGY NUCLEAR FACILITIES

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MONDAY, OCTOBER 26, 1987

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON STRATEGIC FORCES
AND NUCLEAR DETERRENCE,
*Washington, DC.*

The subcommittee met in executive session, pursuant to notice, at 1:08 p.m., in room SR-222, Russell Senate Office Building, Senator J. James Exon (chairman) presiding.

Present: Senators Exon, Glenn, Wirth, and Thurmond.

Staff present: Arnold L. Punaro, staff director; Robert F. Bott and William E. Hoehn, Jr., professional staff members; Mickie Jan Wise, staff assistant.

Also present: Jeffrey B. Subko, assistant to Senator Exon; Edward M. McGaffigan, Jr., assistant to Senator Bingaman; William J. Wight, assistant to Senator Warner; Len Weiss, Senate Governmental Affairs Committee.

## OPENING STATEMENT BY SENATOR J. JAMES EXON, CHAIRMAN

Senator EXON. The subcommittee will please come to order.

Thank you all for joining us today, and especially to you, General Herres. We are very much appreciative of the adjustments you have made to your schedule in order to be here today for a tremendously important hearing.

We are pleased to have you with us to discuss how the requirements for nuclear materials are established. The process by which nuclear weapons requirements are determined is of critical importance to our national security. It is only through a deliberate and considered process that we can be sure that the requirements are properly set. We must ensure that we meet the needs of our defense strategy and maintain an adequate nuclear deterrent force.

Nuclear deterrence has kept the peace now for over 40 years. We sometimes forget that. And there is little prospect that we will be able to abandon our reliance on nuclear weapons for deterrence in the foreseeable future.

At the same time, the process for determining nuclear weapons requirements must provide our leaders with adequate assurance that the outcome is not merely a statement of what we would like to have in a no risk world. That is not realistic.

The process must reflect the fact that as much as minimal risk force would be desirable, we cannot realistically plan for a force that would allow us to face no security risks. I think that this is the underlying concern of most of the members, all of the members of this committee.

Our requirements process should allow us to reasonably reduce risks such that we maintain a force with a reasonable assurance of success. Such an outcome is the result of a balanced process that considers both the needs and the constraints of our national resources.

I hope, General Herres, that you will be able to tell us whether the process that we have established for determining nuclear weapons requirements provides us with the necessary checks and balances that we all want.

Before we hear from you, General Herres, I would like to ask the distinguished Senator from South Carolina, Senator Thurmond, if he would like to make an opening statement in this regard.

Senator THURMOND. Thank you, Mr. Chairman. I will be very brief.

I want to join you in welcoming General Herres to the subcommittee this afternoon. General Herres is well known to this committee, but this is his first appearance as a member of the Nuclear Weapons Council. Isn't that so, General?

General HERRES. Yes, sir.

Senator THURMOND. I look forward to receiving his testimony.

Mr. Chairman, one of the issues that concerns me about the legislation before us, S. 1085, is that it creates powers in the safety board that could result in the reopening of very serious Presidential decisions. I refer to the annual stockpile memorandum, which General Herres will describe to us this afternoon.

I am not yet convinced that S. 1085, as drafted, would raise only the more serious safety matters to the point where the Secretary of Energy might have to appeal to the President to reopen the agreed stockpile memorandum.

To the contrary, the board appears to be empowered to force whatever issue it chooses to the President, and it is under no obligation to consider the costs and benefits of its recommendations.

I believe that this committee must have assurances that the board would not have license to push any matter up to the President, regardless of the remoteness of the threat to safety or the seriousness of the consequences.

As is clear from the General's prepared statement, the process by which the annual stockpile memorandum is created is a very serious one, indeed, as is appropriate for an issue that is so close to the heart of our deterrence strategy.

I trust that this committee will insist on a comparable level of seriousness for those safety issues that can be forced to the attention of the President and weighed against the most serious national security requirements.

Thank you, Mr. Chairman.

Senator EXON. Thank you, Senator.

We have two other Senators who have joined us, and I expect there will be more coming shortly, General Herres, which indicates the keen interest in this whole matter.

Senator Glenn has been a leader for a long, long time in the whole area of nuclear safety that we are discussing here today. He is keenly interested in the matter before us today, as his bill, and others, have clearly indicated.

So I would like to call on Senator Glenn now for any opening statement that he may have.

Senator **Glenn**. Thank you.

I have no prepared statement, Mr. Chairman, but would just ask for a note of clarification. What classification are we operating at?

I would move to go into executive session.

Senator **Exon**. We are in such at the present time.

Senator **Glenn**. We are? OK, good.

Senator **Exon**. We are in a top secret/restricted data category. I think that is the proper setting, would you agree?

Senator **Glenn**. Yes, absolutely.

The staff will certify that everyone is appropriately cleared.

Senator **Exon**. I checked on that when we came in. Everybody is cleared here.

Mr. **Hoehn**. And the DOE and DOD people can certify as to themselves.

Senator **Exon**. General, I assume that you can certify for all whom you have brought.

General **Herres**. Yes, sir. I can.

Senator **Glenn**. I'm sorry. I did not realize this had already been taken care of.

I have a few very short remarks.

With regard to what the distinguished Senator from South Carolina said, that he feels that nothing should go to the President, regardless of safety in this issue, I think most Americans would question that. We had a lengthy hearing the other day in which the distinguished chairman of this subcommittee went into detail on this issue and we answered a lot of questions. It certainly is not the intent of this legislation that we buck everything to the President. I think somewhere we have to say that people will operate with some common sense.

However, with the long track record that we have working with DOE and some of the problems that have been involved with safety, it seems to me that what we are doing is minimal toward making certain that every safety precaution that can be taken is taken, and still leave the President open to say that where matters of national security override those safety concerns, he has the power to do exactly that.

This is all this legislation does—nothing more and nothing less.

Senator **Thurmond**. Will the Senator yield for just a minute?

Senator **Glenn**. Certainly.

Senator **Thurmond**. It is not my intention to say that everything should go; but only the serious matters.

Senator **Glenn**. That is the intent of this, that safety items that are serious matters——

Senator **Thurmond**. Only the serious matters.

Senator **Glenn** [continuing]. Would be the items that would go up there. We don't want to see everything have to go to the President.

Senator **Thurmond**. Oh, we don't object to the serious matters going to the President.

Senator **Glenn**. Well, then, perhaps I misunderstood what you said a while ago.

Senator **Thurmond**. I thought I ought to correct this.

Senator **Glenn**. Thank you.

Senator **Exon**. Thank you, Senator.

I want to recognize Senator Wirth of Colorado, a former Member of the House of Representatives and now a very valued member of the Senate Armed Services Committee, who has an awful lot of first-hand knowledge and concern about the subject at hand.

I would be glad to recognize you for any opening statement or comments that you may have, Senator Wirth.

Senator **Wirth**. Thank you very much, Mr. Chairman. I appreciate your help in all of this.

I want to welcome General Herres, who not only is an extraordinarily able officer of our Armed Forces but also has the very good judgment to be a registered voter in the State of Colorado.

General Herres, thank you very much for coming and we look forward to receiving your testimony.

Senator **Exon**. General, I would only add to that that you are certainly welcome to move to Nebraska, where I can assure you of some big time college football tickets, if you were to so move.

But nothing, though, if you maintain your present residence.

With that little foreplay, General, I am delighted to recognize you for your presentation, and then we will have some questions.

## STATEMENT OF GEN. ROBERT T. HERRES, USAF, VICE CHAIRMAN, JOINT CHIEFS OF STAFF, AND MEMBER, NUCLEAR WEAPONS COUNCIL

General **Herres**. Thank you, Senators. I appreciate your welcome.

I also appreciate yours, Senator Wirth. I might also mention that I do have two children and five grandchildren in Nebraska.

Senator **Exon**. Well, then, that puts a much better light on this.

General **Herres**. Some of them are registered voters.

Senator **Thurmond**. And if you get too cold out there, you could always move to South Carolina.

General **Herres**. We are almost complete Senator. My mother and brother are down in South Carolina.

Senator **Glenn**. Do you have anybody in Ohio? I feel kind of left out at this point.

General **Herres**. Well, now, I thought that might come up. My son was born in Ohio.

Senator **Thurmond**. I think he has all the bases covered.

General **Herres**. I hope nobody else comes in. I'm running out.

I have prepared a statement which has been distributed, and I hope it answers your questions.

I would like perhaps to discuss that statement.

Senator **Exon**. Your full statement will be included in the record, General. Go ahead and highlight it. Please proceed in any fashion that you see fit.

General **Herres**. All right, sir.

What I thought I would do is just talk informally about what my statement says. I have some charts here which might be helpful, and I will try to address the issues you have raised.

## NUCLEAR WEAPONS COUNCIL (CHART 1)
## CHRONOLOGY

- **MILITARY LIAISON COMMITTEE**
    - **ATOMIC ENERGY ACT 1946, AMENDED 1954**
    - **DOD ORGANIZATION; JOINT CHIEFS OF STAFF, ATOMIC ENERGY COMMISION (DEPARTMENT OF ENERGY) OBSERVERS**
    - **OFFICIAL CHANNEL OF COMMUNICATION TO DEPARTMENT OF ENERGY**
    - **MAKE RECOMMENDATION TO DEPARTMENT OF ENERGY ON ATOMIC ENERGY MATTERS RELATING TO MILITARY APPLICATION**
- **NUCLEAR WEAPONS COUNCIL**
    - **RESULT OF BLUE RIBBON TASK GROUP (FY 85 DEFENSE AUTHORIZATION ACT)**
    - **BLUE RIBBON TASK GROUP: ADDRESS FISCAL ACCOUNTABILITY AND DISCIPLINE IN NUCLEAR WEAPONS PROGRAM**
    - **FY 87 DEFENSE AUTHORIZATION ACT ESTABLISHED NUCLEAR WEAPONS COUNCIL**

Those issues, of course, have to do with the production of nuclear materials for weapons and requirements that drive that production, the checks and balances in this system.

I thought I would begin by talking a little about the Nuclear Weapons Council, to which Senator Thurmond referred. Some of this is old hat to you since you were all involved in creating the Nuclear Weapons Council, but I think it is relevant because it is an important part of the checks and balance process that I think you all have been talking about.

The antecedent of the Nuclear Weapons Council was the Military Liaison Committee, established by the Atomic Energy Act of 1946, and subsequently amended. The participation in that committee was limited to the Department of Defense. Basically, it was run by the Assistant to the Secretary of Defense for Atomic Energy. A staff member from JCS and the Atomic Energy Commission (AEC) were observers on this committee.

That remained unchanged when the Department of Energy took on AEC's responsibility. It was, in effect, the official means of communicating requirements to the weapons makers, originally AEC and then the Department of Energy.

This is kind of important and I think in subsequent comments, you will see how that has been changed by the existence of the Nuclear Weapons Council.

Senator EXON. General, let me interrupt you right there. I was not here when this was all set up, and I suspect that the only one of us who was was Senator Thurmond.

Are you indicating from what you have just said that the Department of Defense at one time played a significantly greater role than it does now because of subsequent legislation?

Is that what you are saying?

General Herres. No, sir.

I am saying that the requirements were developed within the Department of Defense, and the way the structure had been built, it was possible for them to have been built unilaterally, rather than by the iteration process, which I am going to describe in a few minutes.

The Nuclear Weapons Council facilitates that process, and I think that will become clear as we go along.

The fourth bullet here speaks for itself. This military liaison group will make recommendations to the Department of Energy on atomic energy matters related to military application; a principle, of course, relevant to your question at hand, is that of requirements.

The Nuclear Weapons Council was formed as an outgrowth of the Blue Ribbon Task Group that was established in the fiscal year 1985 Defense Authorization Act. Other things had been addressed by that Blue Ribbon Task Group, but the pertinent item here is the establishment of the Council, whose membership has changed and been restructured.

## NUCLEAR WEAPONS COUNCIL (CHART 2)

- UNDER SECRETARY OF DEFENSE, ACQUISITION; VICE CHAIRMAN, JOINT CHIEFS OF STAFF; ASSISTANT SECRETARY OF ENERGY
- PREPARE NUCLEAR WEAPONS STOCKPILE MEMORANDUM
- PROVIDE WARHEAD INFORMATION TO DEFENSE REQUIREMENTS BOARD AND DEFENSE ACQUISITION BOARD
- REVIEW AND MAKE RECOMMENDATIONS ON DEPARTMENT OF ENERGY PROVIDED RESOURCE PLANNING INFORMATION
- REVIEW REQUESTS FOR PHASES OF NUCLEAR WEAPONS DEVELOPMENT
- APPROVE MILITARY CHARACTERISTICS OF NUCLEAR WARHEADS

In 1987, based on those recommendations, you all were instrumental in implementing legislation that would create the Nuclear Weapons Council.

Senator Exon. Before you go on, let me stop you once again so that I can get this picture.

What was the reason for the establishment in 1985 of the Blue Ribbon Group? Was there some event that triggered that?

General Herres. I believe it was concern about the process and the relationships. I cannot speak to that with great authority. I think there are some members of your staff who might be able to give you better answers than I could on that.

But, as I understand it, there was concern about the relationship between DOD and DOE and the process by which requirements and other matters affecting defense were consummated.

Senator EXON. So, is it fair to say that at least your impression was that the establishment of this in 1985 was to make certain, as best we could, that the input from the defense establishment was an important part of the decisionmaking processes thereafter?

General HERRES. Yes, sir.

Well, I think that existed before, but I think the relationships were not felt to be bound as tightly and work as well as they could have. Also, there were other issues. For example, there were fiscal issues.

Senator EXON. Senator Glenn.

Senator GLENN. I know we will get to our major questions later, but I think, too, when this was established, there was also a question about what our fissile manufacturing capability had to be, as opposed to how much fissile material we were going to get back from old weapons, making sure that those balances were taken care of. There was this coordination between DOE, DOD, State Department and the executive branch and Congress. It was everybody who was going to get into the act, because this was a big balancing act. Our plants were wearing out and we were retiring some old weapons systems, and we wanted to get fissile material out of those. To do that and to manufacture new ones, someone had to take on the job of balancing out this whole program.

I think that was the basic reason for the establishment of this, wasn't it?

General HERRES. That would be very consistent with my understanding, those kinds of problems, and funding, and, of course, the balance between funding the two Departments and so forth.

Senator EXON. General, staff handed me a note, and it did refresh my memory.

My memory I think basically was correct. I believe Senator Nunn and Senator Warner primarily led the effort to get this established because they were not convinced that there was the relationship that there should be between the Department of Energy and the Department of Defense. And so, it was attached in 1985, primarily to bring better understanding and cooperation, with the end view of recognizing that the national defense of the United States was very much involved with and concerned about this problem, and wanted equal input from all parties concerned.

That answers the question and I thought it was important to clarify that for the record. I don't think they were trying to step on anybody's toes. They were just simply saying let's not underestimate the role that this planning, programming, and safety has to do with affecting the national security interests of the United States.

Go ahead, General.

General HERRES. Yes, sir. I understand.

Let me talk now a little bit about the Nuclear Weapons Council and then go into the requirements.

As I pointed out with the bottom note on the chart, it was the 1987 Defense authorization bill that established the Nuclear Weapons Council. It consists of the Under Secretary of Defense for Acquisition, myself, as the Vice Chairman of the Joint Chiefs of Staff, and the Assistant Secretary of Energy for Defense Programs. We three are the membership of the Nuclear Weapons Council.

Since we have had changes in the other two positions, that makes me now the senior member of the Nuclear Weapons Council, after 6 or 7 months on the job.

We have met, and we have discussed a number of issues, and I will show you how we enter into the requirements process.

One of the most important things that the Nuclear Weapons Council does is to prepare the Nuclear Weapons Stockpile Memorandum for the joint signature of the Secretary of Energy and the Secretary of Defense, for submission to the President. Of course, we review the requirements, and I will talk about that.

We provide warhead information to the Defense Resources Board, and to the Defense Acquisition Board, the two major bodies within the Department of Defense which allocate resources and review programs as to how they are structured and how well they are doing. They conduct the milestone reviews of programs during the acquisition process.

The DAB, Defense Acquisition Board, incidentally, is chaired by the Under Secretary of Defense for Acquisition, and I am the vice chairman of that board. So there is a connection there with the Nuclear Weapons Council, and we both sit on the Defense Resources Board. So there is another connection there with the Nuclear Weapons Council.

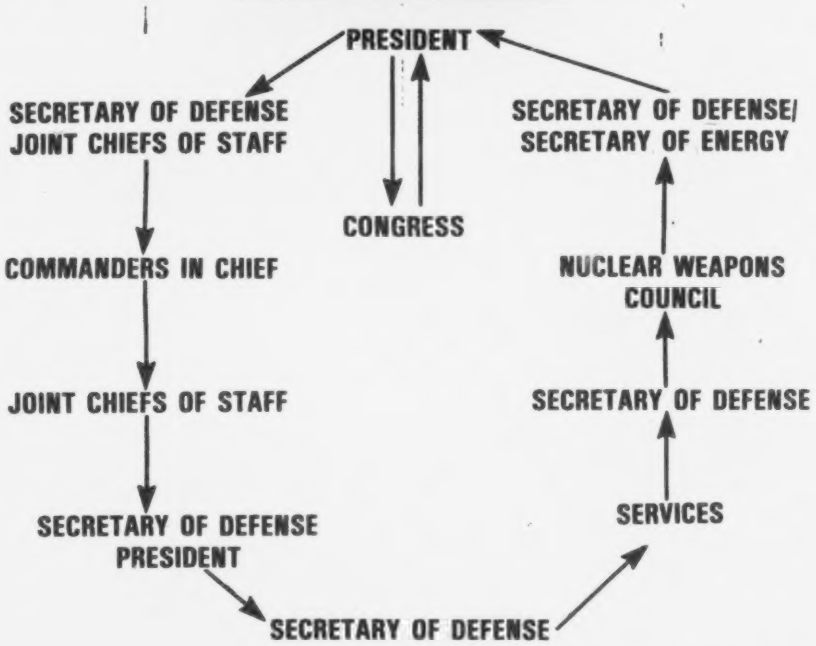
We do make recommendations on Department of Energy provided resource planning information, and that will become more apparent as I get into the requirements cycle. Basically, we figure out how to integrate the resources that must be expended by the Department of Energy to support defense programs and our systems in the resource allocation process.

We review requests for the various phases of the nuclear weapons development. An example of one of those is the SRAM II weapons system right now, which, at one of our last meetings of the Defense Acquisition Board was addressed, and, of course, one of the issues there was the warhead for the SRAM II.

So there is that connection, as well.

Also, we approve the military characteristics of nuclear warheads based on requirements that are submitted to the OSD by the commanders in chief of the unified and specified commands, which, of course, are the drivers of the requirements of the system.

NUCLEAR WEAPONS REQUIREMENTS (CHART 3)
DEVELOPMENT



With that introduction about the Nuclear Weapons Council, who we are and the kinds of things we do, let me turn now to the description of this chart, which is to show you how the nuclear weapons requirements are developed.

This will complete my presentation as I walk you through this.

Really, the fundamental basis which underpins all of our requirements is the threat. The threat comes together with a national strategy. The cycle begins when the President provides guidance to the Secretary of Defense and the Joint Chiefs of Staff by means of national security decision directives.

There have been, during the last 7 years, about a dozen or so that affect this particular issue, the most important of which is the first one, which covered the strategic modernization program. Some of those National Security Decision Directives have modified previous directives. But they have been the drivers of our nuclear weapons requirements.

Based on the guidance that is the underpinning of these National Security Decision Directives, the Joint Chiefs of Staff then provide tasking to the commanders-in-chief on behalf of the Secretary to prepare their nuclear weapons requirements and submit them to the Joint Chiefs of Staff. That tasking provides some guidance. Obviously some of that is derived from the National Security Decision Directives that they, in turn, receive from the President.

The commanders-in-chief then review the programs that are in development. They review their view of the threat and their portion of the threat, their platform projections, and so on, and it all comes together with a submission to the Joint Chiefs of Staff for their nuclear weapons requirements over the coming years.

This is normally an annual submission, and, generally speaking, this will be an "overstatement of the requirement," and I have to put that in quotation marks—because at this point (indicating) there are a lot of uncertainties in the minds of the commanders in chief because there are a lot of programs out there that they are not sure exactly what will happen to them. By programs I mean platform programs, the Small ICBM program, the MX program, the air-launched cruise missiles, the advanced cruise missile, and so on. And, you know, there are a lot of programmatic fluctuations in those programs and in the budget time each year, which affects the actual timing of the acquisition of the various platforms.

So, given that uncertainty, there is a tendency of the commanders in chief to take the projected—which is usually optimistic—platform acquisition rate and build their weapons requirements around that in the case of each particular system for which they are responsible.

Of course, it is important that they do that because we don't want to leave any out. We can winnow them down, but if we find ourselves somewhere downstream here, not having covered a requirement, we will be in trouble.

So, the Joint Chiefs of Staff will then review those requirements, and they will put some additional English on those requirements and provide a planning document to the Secretary of Defense and the President.

Now, that is a broad, strategic planning document. It covers a lot of things besides the nuclear weapons requirements. But, it is a basis upon which the foundation for the requirements in more detailed terms, can be built.

This goes through the Secretary of Defense to the President. This planning document, as I said, is derived from an interpretation and the President's guidance, and it is approved by the President and/or modified as appropriate. It is returned to the Secretary of Defense. I think the best way to do this is to think of that as more refined guidance than what has been provided by the President alone.

At this stage here (indicating), after the President's staff has worked and the services have worked a level of detail on that guidance, some additional guidance comes through the Secretary of Defense. It is on the basis of that and the President's approval of those planning documents that the Office of the Secretary of Defense prepares for the Secretary the Defense Guidance, the so-called DG. The Defense Guidance then is another level or layer of specificity beyond what I have talked about so far. In each step through this process, you get into increasing levels of specificity.

The Defense Guidance goes to the services, who have, of course, responsibility to program for and acquire, to provide force structure to the commanders in chief.

The services then, based on that guidance and the fiscal guidance that they have also been provided, begin to build their Program Objection Memorandum, the so-called POMs, which are developed through the winter and provided to the Office of the Secretary of

Defense in the spring. Then we in conjunction with OSD will provide representation from the Joint Staff, the Chairman and myself. We will review the submissions of the services, the commander in chief of the unified and specified commands, participate in that process of reviewing the submissions, the Program Objective Memorandums from the services, and there is the process of fitting it all into what the expectation for the budget will be.

It then gets down to the real nitty gritty.

This is really where the constraints and the checks and balances come into play.

Now, keep in mind that what we are fundamentally talking about here are platforms for the vehicles which would carry nuclear warheads, the missile, the B-1s, the MXs, the Trident submarines, and the D-5 missiles and so on, because they are the drivers. Those programs really drive the warheads that we are going to need.

It is the fiscal constraints which influence or control those quantities, and then the numbers of warheads that have to be built are driven by those programs. In no way does it happen the other way around.

However, it is important that the capabilities and the capacity of the Department of Energy be folded into all of this. Although the fiscal constraints usually are such that it is not likely to happen, obviously we do not want to build Peacekeeper missiles at a faster rate than the Department of Energy can produce warheads, especially if they have not been given an opportunity for enough advance planning for that production.

So, as an outgrowth of the approval of the POM, the Nuclear Weapons Council then takes up the portion of this process that has to do with the nuclear weapons, the nuclear warheads themselves. It is here that the Department of Energy becomes officially involved in this process because, of course, the Assistant Secretary of Energy for Defense Programs sits on the Council.

This Council is supported by a standing committee which is chaired by the Assistant to the Secretary of Defense for Atomic Energy. On that standing committee is, in addition to representation from the staffs of the membership of the Council, also membership from each of the military departments, which is important because of this part of the process [indicating].

That standing committee begins to work with the Assistant to the Secretary of Defense for Atomic Energy and the OSD staff on the preparation of the Nuclear Weapons Stockpile Memorandum.

The important aspect of that is to get the requirements lined up with the programmatic influences and constraints that come out of the development of systems that proceed from this process, from the Program Objective Memorandums of the services, from the preparation of the 5-Year Defense Plan as an outgrowth of those POM submissions, and so on.

That is where the convergence of the platform requirements and warhead and weapon requirements actually takes place.

So, out of all of this then comes a document that the Nuclear Weapons Council reviews, that the standing committee has agreed it is ready for them to look at. The Weapons Council reviews it, and if it agrees with it and is assured that it is consistent with the outcome of the Program Objective Memorandum and the 5-Year Defense Plan development, then it will provide a Stockpile Memorandum to the Secretaries of Defense and Energy for submission to the President. When the President approves it, then it becomes, in effect, the 5-year planning document for nuclear weapons.

The process ends with his approval.

Of course, we have shown here [indicating] the interaction with Congress and, really, to some degree there is interaction elsewhere. But the interaction with Congress takes place as authorization and funding are sought for the various programs.

Again, we have worked hard in this process to make sure that we do not have the tail wagging the dog, that the nuclear weapons requirements are based on and founded in requirements for programs and systems that have been authorized and approved and are in the 5-Year Defense Plan.

That is how the cycle goes.

I would say, to go back to your question and point about checks and balances, the checks and balances really exist in the system by kind of forcing requirements down to an ever narrowing neck of the funnel, as we get closer and closer to the fiscal realities of the Secretary's 5-Year Defense Plan, which has to be fitted into some kind of 5-year fiscal program.

Now, one of the things that is going to happen in the future as a result of the fiscally constrained strategic planning process that JCS will be doing now will be introducing fiscally constrained strategic planning over at this point in the process.

In the past, here we are planning what is based on the minimum prudent force units, and all of the commanders in chief are always going to want more force levels—as you well know, nobody likes to lose. If you are coaching a football team and you think 40 guys on your squad are enough, you are always going to want 50 or 60. Our CINCs have the same problem. Their commitments are large, they have a lot of responsibility, and they are always going to have a tendency to ask for more structure than the resources will allow.

So, earlier in the process, when we develop the planning documents that we submit to the Secretary and the President, we will provide fiscally constrained goals for that planning. That is going to begin to constrain this whole process a little bit sooner.

In the case of nuclear weapons, however, it would not affect the outcome, I don't think. It would just get us to addressing the issues a little bit sooner in the process.

That concludes my description of the process, Mr. Chairman. I stand ready to address any questions you may have.

[The prepared statement of General Herres follows:]

## PREPARED STATEMENT OF GEN. ROBERT T. HERRES, USAF, VICE CHAIRMAN OF THE JOINT CHIEFS OF STAFF

Mr. Chairman and Members of the Committee, thank you for inviting me here today. I thought it would be useful if, prior to your questions, you would allow me to outline the process by which nuclear weapons requirements are determined.

This is my first opportunity to speak to you as a member of the Nuclear Weapons Council which was established by the Congress in the 1987 Defense Authorization Act with the intended purpose of improving fiscal accountability and discipline in the nuclear weapons program.

America's post World War II defense strategy has been based on deterrence; our nuclear arsenal is the bedrock of this policy which has been successful for over four decades. Neither the promise of a strategic defense system nor the prospects of arms reductions obviate the necessity to maintain an adequate nuclear deterrent force.

Perceptions sometimes are that any arms control agreement will yield immediate and large reductions in our nuclear weapons program and reduce our need for a strong deterrent. Such is not the case. Reductions usually come from the retirement of older, less effective systems, not the termination of new programs. It is only because of our recent modernization program that the United States is now in a position to afford reductions. However, in terms of numbers, any reductions in fielded systems would yield a more modest percentage reduction in total warhead inventory.

As we continue our strategic modernization program—a program that is absolutely essential to assure effective and reliable deterrence against a steadily improving Soviet threat—we will continue to require special nuclear materials for the Peacekeeper, Trident II, small ICBM, cruise missile and other programs.

How much we require is determined by a process that starts at the desk of the President and is completed upon congressional action in Appropriations and Authorizations Acts for the Departments of Energy and Defense.

Through National Security Decision Directives, the Chief Executive provides policy, objectives and guidance to the Secretary of Defense and the Joint Chiefs. This is transmitted to the Commanders of the Unified and Specified Commands who then prepare nuclear weapons requirements studies in an attempt to determine the minimal risk force, or that force with virtual assurance of success.

After a Joint Chiefs of Staff analysis which, among other things, eliminates redundancies, we have what is known as the planning force—that is, the force with a reasonable assurance of success. The Joint Chiefs then make recommendations to the President, through the Secretary of Defense, on national military strategy, military objectives, and force planning guidance. Upon Presidential approval, these considerations are used by the Secretary of Defense in formulating the so-called "Defense Guidance" which includes force and fiscal limits upon which the services develop their programs which are submitted as Program Objectives Memoranda (POMs).

It is at this point that the Nuclear Weapons Stockpile Memorandum (NWSM) preparation begins as a thoroughly joint undertaking of the OJCS, the services, OSD and the Department of Energy. This process is designed to incorporate the military requirements, consider DOE testing assets as well as production facilities, and to be in compliance with congressionally mandated constraints. The coordinated stockpile memorandum is submitted for approval in turn to the Nuclear Weapons Council, the Secretaries of Defense and Energy and finally to the National Security Council for Presidential decision.

Upon approval, the Stockpile Memorandum establishes the requirements for the mix and quantities of nuclear weapons and associated nuclear materials. The cycle is completed upon congressional passage of Defense and Energy Appropriations and Authorizations Acts.

This completes my prepared statement; I hope it was useful. I will now be happy to answer your questions.

Senator EXON. General, thank you very much. That was a good presentation.

We will follow the 10-minute rule here and see if we can move along through this.

Jumping over some of the process which look to be satisfactory and jumping over safety concerns that I indicated earlier have been a major consideration of all of us, let me ask you this question. Jumping over the budget constraints that have an effect on everything, which we all fully understand, jumping over all of this for a minute, given the present difficulties that we have with the production facility in South Carolina and the Hanford facility, where would you judge we are right now with regard to meeting the present and future requirements of our nuclear deterrent?

General HERRES. [Deleted.] We are going to need new plutonium and tritium production capacity.

I am not a good judge of how much longer the facilities that we have can assure that our needs are provided for. But, clearly, with the strategic nuclear modernization program, there is a continued requirement to build new warheads for the D-5s, SRAM II, the Peacekeeper, the small ICBM program, and those requirements will continue. They will flatten out at some point out in the future, but they will continue to exist.

Tritium, of course, is needed also to service existing systems as well as to accommodate new systems.

We will also need new oralloy production, highly enriched uranium production, at some point in the future.

So there are needs for new production capacity in both categories.

How fragile the current production capability for plutonium and tritium is I am not the best judge. I am not expert enough to say. I mean, there are better qualified experts to describe that fragility to you. But we are concerned because we do believe that sooner or later the existing capability is going to have to be shut down or might have to be shut down.

Senator **Exon**. With the knowledge that you obviously have, General, I just want to get down to what I think is a bottom line key consideration here. Given the difficulties that we have at the two main plants that I referred to, and given the increased needs, is there any way in your opinion that those present facilities that I mentioned might be able to meet the needs in the future, even if they continue to operate at their present rates?

General **Herres**. Well, if they continue to operate at their present rates; of course Hanford is not producing at all.

Senator **Exon**. I understand.

General **Herres**. As you also know, we are down to the equivalent of 1½ reactors at Savannah River. So the present rates are significantly curtailed.

[Deleted.]

Senator **Exon**. [Deleted.]

General **Herres**. [Deleted.]

[Chart deleted.]

I would ask my staff that if you guys find it sooner, hand it to me.

[Deleted.]

Now, if the Savannah River reactors come back on line at full power, we still have a concern of whether or not one might have to be shut down just on a no-notice basis, out of the clear blue sky, as the first one was, shut down permanently, I mean.

[Deleted.]

Senator **Glenn**. What is that curve, [deleted.]

General **Herres**. [Deleted.]

Senator **Glenn**. Is this for plutonium and tritium both?

General **Herres**. It is for a combination of the two. [Deleted.]

We have combined the two because if you fall behind on tritium, you just slow down plutonium production and increase tritium, or vice versa. So they really sort of go hand in hand.

[Deleted.]

Senator **Exon**. So, I guess the lay answer to that is [deleted.]

Is that about it?

General HERRES. [Deleted.] So all we have are those three reactors now.

If, say, another reactor were to have the problem that the first one that was shut down had, you would be down to the equivalent of one reactor, and that would make [deleted].

Senator EXON. General, the Atomic Energy Act requires the express consent and direction of the President before the Department of Energy can engage in the production of atomic weapons. This provision provides the basis for the annual Nuclear Weapons Stockpile Memorandum.

What would be the effect of revising the results of this process each time an independent oversight board makes a recommendation that will affect production capacity?

I am trying to look ahead to see where we are going to be with S. 1085. I think we have outlined the problem and we are going to get into this specific problem further with DOE tomorrow.

To put it another way, emphasizing once again safety, I am very much concerned that there might be an independent oversight board that would be making some determinations without proper balance between safety and the needs of national defense.

Is that a concern of yours?

General HERRES. Yes, sir.

Obviously, I am very much concerned with safety as well. I guess the way I would have to answer your question is that if there are a lot of bumps in the production, then what you have to do is make a much bigger investment [deleted].

If there is going to be a lot of turning on and off or slowing down of production, which I think is the possibility you are alluding to, then you have to make a significant investment [deleted].

For example, we have not produced highly enriched uranium for a good number of years because we have a good sized stockpile. So, taking retired weapons and the existing stockpile of the time, we have been able to get by for some time without producing highly enriched uranium.

[Deleted.] Tritium has a shelf life, and that is why tritium has to be replaced or replenished in existing weapons. [Deleted.]

Senator EXON. To follow up that point, tritium cannot be treated like milk. You cannot powder it in some way and bring it back or reconstitute it. There is very little shelf life for tritium.

I am going to yield to my friend from South Carolina, because he has another meeting, and then I will revisit some other questions in the second round.

It is pretty obvious that maintaining our capacity to produce these nuclear materials is tremendously important to our national defense. What would be the consequences to national security, General, if our present reactors are shut down or might be shut down if S. 1085 were to become law? What would that do to our national security interests?

General HERRES. Well, I am certainly not the right person to comment on the direct relationship between S. 1085 and our national security. But I can speak to the requirements if they are——

Senator EXON. Well, I am talking about that. Let's leave out that number and say this. If, through any kind of mechanism, safety requirement board or otherwise, call it what you will, if the safety concerns would become so overwhelming, and if our production facilities at Savannah River would be closed down——

Senator **THURMOND**. Mr. Chairman, let me give you these questions for the record. I just have to go.

Senator **EXON**. I will recognize you right now.

Senator **THURMOND**. Well, I really do not have enough time.

Senator **EXON**. Do you want to put those in the record?

I will recognize you, Senator, and come back to my questions.

Senator **THURMOND**. If you would just answer these for the record, I would appreciate it.

General **HERRES**. Yes, sir.

Senator **THURMOND**. I have two appointments, one is a meeting, and then there is another one, so I am afraid I won't be able to get back.

But thank you very much for coming.

Senator **EXON**. I will read those into the record right now.

Senator **THURMOND**. Thank you very much.

Senator **EXON**. General, these are the questions we would like to ask you for the record submitted by the Senator from South Carolina.

To what extent have constraints or production capabilities been a consideration of the formulation of the Stockpile Memorandum?

In your judgment, how sensitive to the changes in the production capacity is our ability to meet critical military requirements for nuclear weapons?

Under S. 1085, the Secretary of Energy is required to bring disagreements with the safety board recommendations to the President for resolution. How comfortable are you that such a process would afford a fair playing field for national security requirements, given the political difficulties of appearing to be against nuclear safety and for more nuclear weapons?

As one man with a critical role in the national security, how do you react to the possibility that an outside board without responsibility for or even consideration of the national security implications of their actions has the potential to close facilities that would directly affect the ability to meet the Nation's stockpile requirements?

Last, I share—Senator Thurmond speaking—share, as I am sure you do, that safety must be a paramount consideration in the production of nuclear weapons. Would you give the committee any guidance as to how serious a safety issue ought to warrant reconsideration of the requirements of the stockpile memorandum?

We may get into those a little bit further, but for the record, we will submit those to you for answer to Senator Thurmond, as requested.

I am pleased at this time to recognize Senator Glenn.

Senator **GLENN**. Thank you very much, Mr. Chairman.

Let me start off by saying that S. 1085 does not shut down anything. This is in response to the chairman's statement of a minute ago.

What S. 1085 does is to provide the mechanism, whereby the only shutdown that would occur would only be with Presidential approval. All the inputs that you mentioned here would be available to the President before he would make that kind of decision.

So, S. 1085 only shuts down a facility if there is a drastic safety requirement involved, and if the President says to shut it down. That would be the only time there would be a shutdown from this S. 1085.

Let me ask you, General, this question. This seems to be very key.

[Deleted.] I would agree with that except that the current rate of production is a changing ballgame.

You have a different target here on where your material is coming from.

Do you have figures that show what the sources of fissile material are and what they are proposed to be?

In other words, the problem is this. Our biggest supply of fissile material now comes from the old weapons that are out there now, and as that material is brought back in and is refurbished and overhauled, whatever is done to it, that is our biggest source of fissile material now, not the production capability.

I think there is some misconception about that.

General HERRES. Sir, I think we have a pie chart that shows that proportion.

Senator GLENN. Fine. Let's see it.

The importance of that is this. If our major supply is out of what we have out there in the stockpile now and from weapons that are being retired one after the other, we take that material back as our major supply. Then, the idea that we need something for the tritium production is a major function of whatever we are going to do in the future.

We need the fissile material manufacturing capability, I agree. We need the tritium. That is critical. But it is important as to our providing future production facilities, what this balance is is important, as we foresee it.

That is a rather convoluted, round-about signal, but I think you get what I am driving at.

General HERRES. Yes, sir.

[Chart 5]

SOURCES FOR NUCLEAR MATERIALS

[Deleted.]

I think this pie chart shows your point. [Deleted.]

Senator GLENN. What is all of this up in here, then? Is that HEU?

General HERRES. That is what is now our lost capacity.

Senator GLENN. Oh, lost production capacity.

General HERRES. That is to illustrate that Hanford and the reactor down at Savannah River are shut down. [Deleted.]

Senator GLENN. Do your figures [deleted] include bringing all the fissile material back out of weapon systems that can or could be retired?

General HERRES. Yes, sir.

Senator GLENN. That includes all of that?

General HERRES. Yes, sir.

But, keep in mind that tritium is not a part of that picture.

Senator GLENN. No, I know. Tritium has a half-life of 12.5 years and needs to be replaced. Since we are at this classified level here——

General HERRES. We will leave copies of both these charts with you.

Senator GLENN. [Deleted.]

General HERRES. [Deleted.]

Senator GLENN. [Deleted.]

General HERRES. It does now.

Senator GLENN. OK. What do the Soviets do? [Deleted.]

General HERRES. [Deleted.]

Senator GLENN. Are you taking into consideration all of those charts in your presentation here [deleted].

General HERRES. Yes, sir. There are uncertainties there, of course, as to when they might come out. Right now it is like painting several trains moving by at the same time, with the potential for an INF agreement and a START agreement. They will certainly change the picture.

How fast systems that are in the field will come out of the inventory will vary and will very much affect that.

But short of a START and consummation of the INF agreement, what we would do is fairly predictable. In other words, I think you can expect stability over the next 5 years.

Senator GLENN. Tell me what the INF agreement would do to the requirements for fissile material?

General HERRES. [Deleted.]

Senator GLENN. I know, and I would think that would [deleted]. [Deleted.]

General HERRES. [Deleted.]

Senator GLENN. [Deleted.]

General HERRES. [Deleted.]

Senator GLENN. [Deleted.]

General HERRES. Yes, sir.

Senator GLENN. At least it can be conceived to do that, anyway.

General HERRES. [Deleted.]

Senator GLENN. [Deleted.]

General HERRES. Yes, sir. That is total. [Deleted.]

Senator GLENN. The start of the blending program, as I believe it was called, at Savannah River back in about 1981 to convert that reactor to one that manufactures super grade plutonium, and then you mix some of it up again and you come out with a higher power than you would with a straight, soft plutonium production—has that had a major impact on the amount of plutonium that we need in our whole system?

General HERRES. I am not sure. I think somebody from DOE would be much better qualified to give you an answer to that.

Senator GLENN. The figure that I get is somewhere between [deleted] that it enhances our overall capability by some [deleted]. Would that be in the ballpark?

Is there anybody here from DOE who knows?

General HERRES. I don't know if they want to try to take that on. Perhaps tomorrow someone could answer that question.

Senator GLENN. If you can get us a figure on that, we would appreciate it.

[The information follows:]

The blending program has had a major impact on the availability of weapons-grade plutonium. According to DOE, during the period fiscal year 1982 through fiscal year 1986, the blending program resulted in about 50 percent more weapons-grade plutonium than would have been available from the Savannah River reactors had blending not been undertaken.

Senator **Exon**. They will be getting into some of those details tomorrow, I believe, Senator Glenn.

Senator **Glenn**. Is Savannah River capable of giving us the tritium that we need? That is a critical item. [Deleted.]

So, is Savannah River capable of keeping up with our tritium needs?

General **Herres**. [Deleted.]

Savannah River, sir, is going to have to come off the air sooner or later.

Senator **Glenn**. I tend to agree with you 100 percent. Let me just bring this back to where we are, on S. 1085, before my time runs out.

S. 1085 really just says that as these plants get older, they are becoming a greater hazard. DOE has operated these plants through 30-some or 40-some years, and it's not their fault that the plants got old. They just get old. [Deleted.] It is not DOE's fault on a lot of these issues, except this. One thing that had happened is the more we got into this over the past 3 years or so that I have been looking at it and GAO got into it, the more we find the safety concerns have not been given their due on these plants.

We have not kept up.

Now, that may be as much our fault as anybody else's, as well as DOE's, for not providing the money to do this.

But all this bill does, all S. 1085 does, is to say that we, with the track record we have seen in the past, what we need is this advisory group. When they say that something is important enough that there is a real safety and health problem, this should get bumped to the Secretary of Energy, and if he does not agree with them, then it gets bumped to the President for a final decision.

If there is a real health and safety issue and if the President at that point says that the security of this country requires more tritium, more plutonium, more whatever, and that that is more important than the smaller increase in risk from a nuclear accident, that security is more important in his judgment, at that point production goes on. Nothing stops.

It is brought to the President and he makes the decision. So, S. 1085 in no way can be interpreted to say that it will shut down by itself anything, that it will shut down anything solely by a recommendation of that board alone. It would go to the President. It would be a Presidential decision. He alone would have all the knowledge of the international situation, our stockpiling, all of the things that the advisory board would not know. But they would be experts in safety.

The final decision would go to the President. I think that has been a misunderstanding of this issue so far.

Thank you, Mr. Chairman.

Senator **Exon**. Thank you.

Senator Wirth.

Senator **Wirth**. Thank you, Mr. Chairman.

I would just note that, as we are discussing the complex for making nuclear weapons and discussed Savannah River and Hanford and the problems there, we should also be attentive to the very real problems that exist at Rocky Flats, where the reprocessing and machining of plutonium occurs.

There is very little redundant capability. There is a little bit at Los Alamos and a little bit in Hanford. [Deleted.]

We have some very significant problems at Rocky Flats, in terms particularly of the reprocessing. There has been a building on line there that was built in the 1950s, that was to be replaced by another building in the 1970s. We have spent about $200 million on that, and the building has never worked.

We are faced with either relocating that function out of Rocky Flats or spending another $300 million to $500 million to make that building work.

This is part of the overall complex problem that we have, problems in the nuclear weapons complex.

I just would like to add this to your sight as you think about Savannah River and Hanford. Rocky Flats is a major node in this, and if we have a problem in that node, we have a problem through the whole system, just as we do with the others.

That is a gratuitous addition to this discussion. But it is of concern.

Senator **Exon**. I thought you would mention that, Senator, and it is a good point.

Senator **Wirth**. It can make things very, very complicated.

Following up on Senator Glenn's questions, General, if I might, related to the amount of plutonium coming back from returned weapons versus the requirements for new weapons, have you walked through that analysis of how much plutonium comes back and how much we are going to require?

Have you actually seen those numbers yourself?

I know, to use your expression, that it is like painting a number of trains as they go by, this is what is going to happen and when. But it seems to me that we ought to go back. If one of the concerns of the committee and the Congress is going to be what happens in the whole nuclear weapons complex, how much demand is there going to be, we have to assure that the supply is no greater than we are suggesting.

The reason I ask this question is this. When we did a very careful analysis of the future of Rocky Flats, we got into what would happen were Rocky Flats to have a problem or were we to move part of Rocky Flats, i.e., a variety of moving trains at Rocky Flats that were going by, some faster than others.

[Deleted.]

General **Herres**. [Deleted.]

Senator **Wirth**. [Deleted.]

General **Herres**. I have not walked through the numbers associated with those tradeoffs.

Senator **Wirth**. It seems to me that this is terribly important. I am going to get to the other end of the demand/supply equation, too. But it seems to me, Mr. Chairman, looking as carefully as we might on how much is coming back versus the best demand for what is going out, we ought to have a very clear fix on that.

Maybe you do, Mr. Chairman.

I just remember—and, again, this is 2 or 3 years ago—an awful lot of fuzziness in the assumptions about how much was coming back as supply versus the new that was going to be required, and then what demands that would be placed on us at Rocky Flats for reprocessing.

Granted, that was a view from Rocky Flats and not the overall view of this committee, but I think it is a terribly important area that Senator Glenn was touching on.

I would hope you might look at that quite specifically yourself and really ask about those numbers.

Second, Mr. Chairman, this ought to be something that we are sure we understand, exactly how much is coming back or close to how much is coming back versus what the demand might be.

General HERRES. What we have looked at is the effect of accelerated retirement of weapons because of such things as the INF. We have looked at such as what if the U.S. proposal in START is accepted, what kind of drawdown is there? What if the INF agreement, which we seem to be on the verge of consummating, is implemented? How does that affect the combination of plutonium and tritium? Of course, on the components, you can make tradeoffs with various relationships between tritium and plutonium.

So we have looked at the impact on production requirements. We have done that. We have walked through the numbers.

But there are still fuzzy assumptions.

Let me give you an example of what some of them might be.

[Deleted.]

Senator WIRTH. I understand.

Let me jump on to another point before my time has expired. I would simply say that I would urge you to make sure that those figures are grounded in such a way that you are sure of what is happening in terms of the assumptions made on weapons coming back versus what the demand is going to be, [deleted].

There are people out there who are observers in the complex [deleted].

I am not sure that we want to ask for those numbers for the record. But I just want to leave that out there, Mr. Chairman, as an area that you may want to look at.

The other side of the equation is how we decide how many weapons we need, which is clearly target driven.

General HERRES. It starts with the targets. Then it works through the delivery systems and then to the weapons.

Senator WIRTH. Who decides what the targets are, and then, once you decide what the targets are, how much damage we ought to be able to do to those targets?

Do you have a way of going back and looking at that? For example, if we are looking at a particular kind of facility, do you want to be able to hit that facility only hard enough to destroy anything on the surface, or do you want to be able to penetrate the overall facility, or do you want to be able to destroy, say, all the machine tools that are inside that facility? Those are three levels of what you want to be able to do.

I would guess that, just as people always want to have more weapons, there is going to be an assumption that to be safe you are going to want to have maybe a lot more destructive capability than, in fact, you need, or you are going to be targeting a lot of things that, in fact, you don't want to target.

General HERRES. That is a part of that process that I described in my charts.

Senator WIRTH. Who does that?

General HERRES. All of the individuals and bodies who are in that process play to some degree. The biggest players are, of course, starting with the President's guidance, the Secretary of Defense, giving his nuclear weapons employment policy guidance, and the Joint Strategic Target Planning Staff, which is really an arm of the Joint Chiefs of Staff in Omaha. It is directed by the commander in chief of the Strategic Air Command wearing a different hat, who responds to that task and provides options from which the JCS make choices and then subsequently make recommendations to the Secretary.

Senator WIRTH. I understand.

It would seem to me that, again, a point of potential weakness—and I am not sure that it is a weakness, but of potential weakness—is that the requirement or the demand, say, at the other end of the process is much greater than, in fact, we really need. It may be much greater. I don't know. But consequently it skews the analysis and consequently skews how much we have to respond immediately or over a very long period of time.

The points that I am making are two.

At the end of the process, there may be more there than suggested by those who want to create new plutonium because they think it is safer to do that and to have that margin. I understand that. It is nice to be safe. But we may not have that luxury.

On the demand side of it, it may be that there is an over-kill capability built into this system.

General HERRES. I assure you, Senator, that it is not there, and that can be shown. But I don't want to take the time, unless you want me to go into that today. I could go into that in more detail. [Deleted.]

Senator WIRTH. My time has expired. But again, are the assumption of the JCS goals the right ones? That is a question.

Senator EXON. Thank you very much, Senator Wirth.

Many of the questions that you have been referring to hopefully will also be asked and answered in tomorrow's hearing with the DOE. But there is an interrelationship with today's hearing. I think they are appropriate in both instances.

I would like to announce at this time for the record that the record for both this hearing and the DOE hearing tomorrow will be held open until the close of business on Wednesday, October 28, so that questions that Senator Wirth asked today or those that he or others have a chance to ask tomorrow can be submitted for written responses. I think all of these questions are very relevant to the matter at hand. That is now established.

I have just one or two questions remaining, and then if you have further questions, Senator Wirth, I would be glad to turn this right back to you.

General, it seems to many of us that the Stockpile Memorandum requirements for the out-years have been sometimes too optimistic. I am wondering if you agree with that?

If so, what new steps have you taken, either as Vice Chairman of the JCS or as a member of the Nuclear Weapons Council to make the stockpile projections more realistic so that we can get an honest handle on them?

General HERRES. I am not sure that I understand what you mean by "optimistic," Mr. Chairman. Is it optimistic in that our expectation is that we can—what?

Senator EXON. I am talking about the out-years, if you have estimated that we are going to have more stockpiles than we are realistically likely to have.

General HERRES. That we might realistically be able to build or achieve?

Senator EXON. Yes.

General HERRES. Well, the process should give us the results of the best judgment of the people who are looking at the problem from both sides and the people on our side of the river are looking at the requirements of what we need, the expectations for the coming on line of the platforms, the delivery platforms, combined with the judgment of the experts at the Department of Energy who are responsible for producing the weapons.

Hopefully, we will not have been more optimistic about the production of the platforms than DOE has been about the warheads. Hopefully it will all come together, and the best judgment of the executive branch literally has been put to work on producing that. I would say that the establishment of the Nuclear Weapons Council is a big step toward giving us a better handle on it.

Senator EXON. To put that into a more realistic light?

General HERRES. Yes, sir, because it then causes us to iterate the problem at an earlier stage of the process, and the standing committee, which consists of membership both from the Department of Energy and from the military departments in the services who are responsible for producing and acquiring the platforms themselves—there is participation on both sides. So you have both groups influencing how those numbers come out.

I cannot think of what else we could do to come up with better judgments.

Senator EXON. General, just one last comment and possibly a question.

There has been some discussion here today about the fact that if the INF agreement comes to pass, the saving of the material that we hope we need could be helped significantly. Since tritium, in particular, has that limited shelf life that you referred to earlier, we have a problem understanding that tritium deteriorates whether it is on the shelf or in production or in a warhead. It just has a 13-year life.

[Deleted.]

General HERRES. [Deleted.]

Senator EXON. I have no further questions, General. Senator Wirth, do you have anything further?

Senator WIRTH. No, I do not.

Thank you very much, Mr. Chairman.

[Questions for the hearing record with answers supplied follow:]

### QUESTIONS SUBMITTED BY SENATOR STROM THURMOND

Senator **THURMOND**. To what extent have constraints on production capability been a consideration in the formulation of the stockpile memorandum?

General **HERRES**. The stockpile memorandum is developed through a joint process, which involves staff members from the Office of the Secretary of Defense, the Joint Chiefs of Staff, the services, and the Department of Energy. The capabilities, capacities, and efficiencies of the DOE facilities are folded into the joint process. For example, there are workload limits on how many warheads the DOE can build and retire in one year. Such factors are considered throughout the formulation of the stockpile memorandum.

Senator **THURMOND**. In your judgment, how sensitive to changes in production capacity is our ability to meet critical military requirements for nuclear weapons?

General **HERRES**. [Deleted.]

Senator **THURMOND**. Under S. 1085, the Secretary of Energy is required to bring disagreements with the safety board's recommendation to the President for resolution. How comfortable are you that such a process would afford a fair playing field for national security requirements, given the political difficulty of appearing to be against nuclear safety, and for more nuclear weapons?

General **HERRES**. Decisions of such magnitude are reported to the President, who retains the ultimate authority and responsibility. However, the Secretary of Energy has official responsibility for nuclear warhead production, nuclear materials production, and safety, and should make such decisions. I am comfortable that the executive branch already provides a proper forum to weigh safety considerations against national security requirements.

Senator **THURMOND**. As one man with a critical role in the national security, how do you react to the possibility that an outside board, without responsibility for, or even consideration of the national security implications of their actions, has the potential to close facilities that would directly affect the ability to meet the Nation's stockpile requirements?

General **HERRES**. I would oppose an outside board being given the authority to close down nuclear production facilities without considering the implications of their actions on national security. It is my understanding that S. 1085 as currently written does not directly authorize the board to shut down any facilities on its own; however, I am concerned that it would be politically difficult to override the recommendations of the board. Except for immediate safety hazards, production facilities ought not to be closed and production rates ought not to be changed without first assessing both the safety concerns and the national security implications. An independent board comprised of safety experts only, may not be able to make this assessment.

Senator **THURMOND**. I share, as I am sure that you do, that safety must be a paramount consideration in the production of nuclear weapons. Could you give the committee any guidance as to how serious a safety issue ought to warrant reconsideration of the requirements of the stockpile?

General **HERRES**. We are one-third of the way through modernizing the stockpile to meet current national security requirements. Delays in this modernization program would increase the risk to national security. Certainly, any safety issue which is serious enough to warrant consideration of closing down a production facility or serious enough to affect production rates of nuclear weapons, would require reconsideration of the stockpile requirements and an assessment of the impacts on national security.

Senator **EXON**. Thank you.

Thank you, General, very much for coming over. It was a good presentation.

We are adjourned.

[Whereupon, at 2:22 p.m., the subcommittee adjourned, to reconvene upon the call of the Chair.]

# SAFETY OVERSIGHT FOR DEPARTMENT OF ENERGY NUCLEAR FACILITIES

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TUESDAY, OCTOBER 27, 1987

U.S. Senate,
Committee on Armed Services,
Subcommittee on Strategic Forces
and Nuclear Deterrence,
*Washington, DC.*

The subcommittee met in executive session, pursuant to notice, at 2:15 p.m., in room SR–222, Russell Senate Office Building, Senator J. James Exon (chairman) presiding.

Present: Senators Exon, Glenn, Wirth, Thurmond, and Quayle.

Staff present: Robert E. Bayer, Sherri Wasserman Goodman, William E. Hoehn, Jr., George K. Johnson, Jr., and T. Kirk McConnell, professional staff members; Mickie Jan Wise, staff assistant.

Also present: Jeffrey B. Subko, assistant to Senator Exon; Edward M. McGaffigan, Jr., assistant to Senator Bingaman; Kevin T. Knobloch, assistant to Senator Wirth; Henry D. Sokolski, assistant to Senator Quayle; Samuel J. Routson, assistant to Senator Symms; and Len Weiss of the Senate Governmental Affairs Committee.

## OPENING STATEMENT BY SENATOR J. JAMES EXON, CHAIRMAN

Senator Exon. The subcommittee will please come to order.

Gentlemen, welcome to the meeting. I think all or at least some of you were here yesterday for the presentation that we had, and we are delighted to have you back today.

We are beginning in closed session, at the secret-restricted data level, and after presentations and questions on the material that is highly classified and obviously could not be held on open session, we will then go into an open session for the balance of the hearing.

One of the problems that we have in the Armed Services Committee, as you probably know, is we hardly ever have a hearing where there is not a part of it that is not highly classified. When we think some information not only should get out but the people have a right to know about it, we often get caught frequently in having to switch quickly between open and closed sessions.

I prefer, frankly, open meetings and then going into closed, as is necessary. But at the level that we are operating here, I think all will understand that it is most difficult to clear the room and then clear it again after it has been open and closed, or closed and then opened.

So, we will proceed with our scheduled plan, but the chairman would like to go open as soon as we possibly could.

With that in mind, I would ask members of the committee to ask any questions that they believe would possibly be required to be answered in a closed session only. If they would ask those questions, then we can go open with a general discussion of the topics here.

Of course, if we get into an area where either the chairman or any of you or any of the other members of the committee feel a question has been asked that should not be discussed in public, then it would be appropriate for anyone to speak up and so designate.

Thank you for joining us today, Mr. Salgado, as we continue our hearings on oversight of the Department of Energy's nuclear facilities.

We heard yesterday, as you know, from General Herres on the process by which the nuclear weapons requirements are established.

In the closed portion of this hearing, we hope that you will provide us with the outlook for the production of nuclear materials needed to meet those weapons requirements over the next several years.

As long as we provide for our security by nuclear deterrent, we will have to maintain an adequate stockpile of nuclear materials. We need to know the ability of our nuclear weapons complex to meet our national security needs for nuclear material.

We will begin your testimony on this subject in closed session, as I have indicated.

We will go right to you, sir, unless there are opening statements by other members of the subcommittee.

Does the Senator from South Carolina have any opening statement?

Strom.

Senator **Thurmond**. No opening statement. Thank you, Mr. Chairman.

Senator **Exon**. With that, then, we are very glad to recognize you, Mr. Salgado. We thank you for coming.

Please be as brief as you can under the outlines of the Chair. Then, if you care to make additional opening comments in open session, I will be glad to recognize you for that at the appropriate time.

## STATEMENT OF HON. JOSEPH F. SALGADO, UNDER SECRETARY, DEPARTMENT OF ENERGY, ACCOMPANIED BY TROY WADE, ACTING ASSISTANT SECRETARY FOR DEFENSE PROGRAMS, DEPARTMENT OF ENERGY; DELBERT BUNCH, DEPUTY ASSISTANT SECRETARY FOR SAFETY, HEALTH, AND QUALITY ASSURANCE; AND BRUCE TWINING, ACTING DEPUTY ASSISTANT SECRETARY FOR NUCLEAR MATERIALS, DEPARTMENT OF ENERGY

Mr. **Salgado**. Thank you, Mr. Chairman.

I would indicate that to my left is Mr. Troy Wade, the Acting Assistant Secretary for Defense Programs, who is with us today. To my right, sir, is Dr. Del Bunch, Deputy Assistant Secretary for Safety, Health, and Quality Assurance.

The purpose of this briefing, sir, is to bring you and your members an update on the capacities and capabilities of the Department of Energy.

[Slide deleted.]

Senator **Thurmond**. Just a minute. If you don't mind, could the machine be moved a little further to the side. It is right in the way of my line of sight.

Mr. **Salgado**. Gentlemen, this is a picture depicting the Department of Energy, the weapons complex, and specifically the W-87 Peacekeeper warhead. The Department of Energy designs, it builds, it tests, it manufactures, and it maintains the nuclear deterrent stockpile for the U.S. Government.

Located within this warhead are three crucial materials that are needed for the development and the maintenance of our weapons stockpile: tritium, plutonium, and oralloy.

[Slide deleted.]

Tritium is produced in our production reactors at Savannah River. Tritium naturally decays and, in existing weapons, it must be replaced on [deleted] years in order to maintain that nuclear deterrent.

It is [deleted] a gas in a small vessel located in the front [indicating].

Plutonium comes from our production reactors. We also receive it from recycled weapons and from scrap recovery activity.

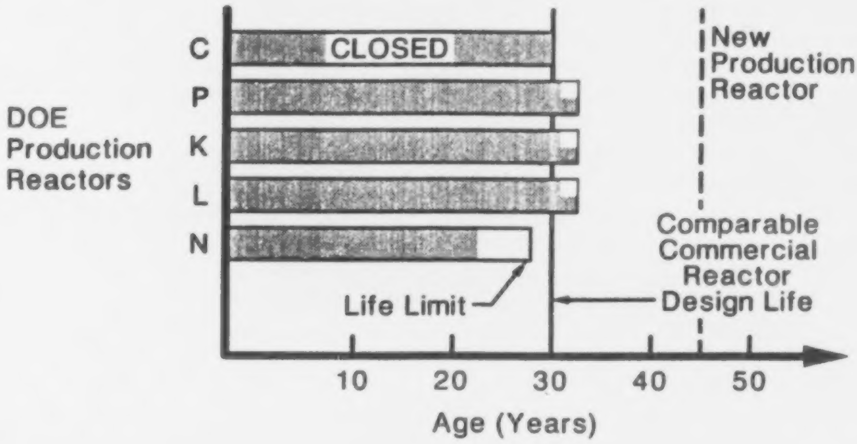
Oralloy, the third element, in essence does not come from production reactors but comes from our gasseous diffusion plant located in Ohio.

What are the sources of these materials?

[Slide deleted.]

New production from our reactors—that was talked about; weapons retirements, commonly referred to as mining the stockpile; and the recycling of residue from the manufacturing process. Obviously, there are scraps where we manufacture these components, and we recapture that scrap and basically put it back into the stockpile.

# PRODUCTION REACTORS AGING



We want to talk now about our production reactors.

This column [indicating], C, P, K, L, and N, reflects the reactors of the Department of Energy.

As you can see by the timeline, the four reactors, C, P, K, and L, have essentially reached a 30-year age limit. The comparable design life of a commercial reactor is 30 years.

Our production reactors have reached and are surpassing that timeline at this particular time.

The N Reactor has a design life of approximately 27 years because it is different than the heavy water reactors located in Savannah River. It has a graphite core, and that graphite core is continuing to grow or to swell. It will come into contact with the upper shielding; its design life is approximately 27 years.

As you can see from this, C Reactor is currently closed. There has been a life limit imposed by the graphite core on the N Reactor, and these red marks [indicating] indicate or demonstrate that these reactors are operating at 50 percent power.

[Slide deleted.]

What has happened to the production capabilities of the U.S. Government in the Department of Energy?

We want to go back to 1985. In 1985, there were five production reactors available to the U.S. Government in the Department of Energy. We had C Reactor, three other reactors at Savannah River, and N Reactor. In 1985, C Reactor developed cracks in its vessel. They were cracks that, basically, were such that there was no scientific or technical basis upon which those cracks could be repaired. So C Reactor was shut down.

In April 1986 the Chernobyl incident occurred in Russia. The Chernobyl reactor is somewhat similar to the N Reactor at Hanford, WA because of its graphite moderated core design.

We then commissioned a group of outside experts to look at N Reactor, to indicate what needed to be done to ensure that a Chernobyl-like incident could not occur at N Reactor. That reactor has been in stand-down status now for approximately 6 to 8 months, and will continue in stand down. There is hope of restarting that reactor in probably 6 or 8 months.

During this period, we commissioned the National Academy of Sciences to review our entire weapons complex for safety, to ensure that we were operating our reactors and our production complex in a safe and efficient manner.

During this period, we determined that the data base we used at the Savannah River reactors to calculate the power levels of operation were suspect—not that they were wrong, but that they were suspect. The reactors were brought to a 50 percent power operating level.

So today, Mr. Chairman and gentlemen, we effectively have 1½ reactors operating to meet the needs of this country to produce nuclear materials. We have two reactors at 50 percent power, producing the tritium, those things that are necessary to maintain the current stockpile, and we have a half a reactor at Savannah River, or one reactor at 50 percent power, producing the plutonium that is needed.

[Slide deleted.]

What does this mean to us in our overall picture?

Approximately [deleted] of our materials requirement comes from new production. The remainder, as you see in the pie graph, comes from recycled residue and retirements and the mining of the existing stockpile.

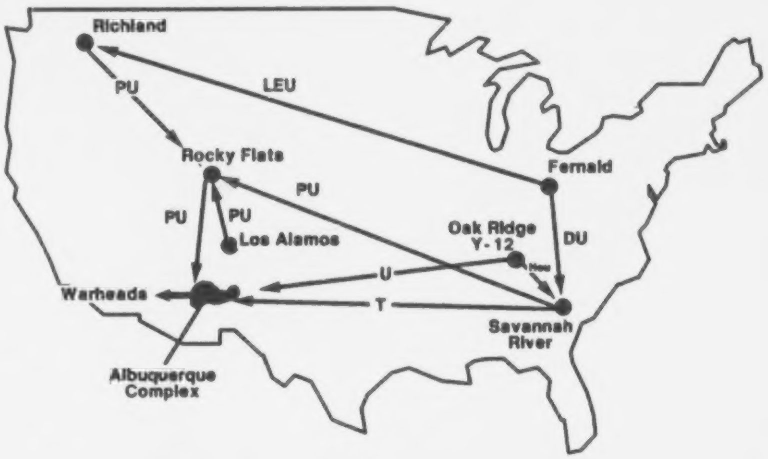
The Department of Energy has lost 66 percent of its new production capacity because of the stand-down status of the N Reactor and the 50 percent power operating levels at the Savannah River reactors.

At this point, Mr. Chairman, I will ask Mr. Troy Wade to address the specific issues dealing with the particular sites and their interrelationship with our ability to meet the Stockpile Memorandum requirements.

Mr. WADE. Thank you, Joe.

Mr. Chairman and members, first let me point out to you this chart.

# SIMPLIFIED NUCLEAR MATERIAL FLOW DIAGRAM



Here is the size of the complex to which we are referring.

Let me start first with the facilities in Senator Glenn's State, in Ohio, in Fernald, where feed material from the diffusion plants is turned into slightly enriched uranium, or depleted uranium, for the reactors in Savannah River.

Senator THURMOND. Would you flash the light over on that chart so that we can see it better.

Mr. WADE. Here we have completed material for the Savannah River reactor and here [indicating] slightly enriched uranium for the reactor at Hanford.

From those reactors comes plutonium [indicating], which is sent to the plutonium fabrication facility in Rocky Flats, after it has been processed. Plutonium also is recovered at Los Alamos from scrap. Highly enriched uranium goes from the Oak Ridge plant in Tennessee to Savannah River, and also to the final assembly point in Texas, the Pantex plant in the Panhandle of Texas. There all of the component parts come together and the weapons are assembled.

I will talk briefly about the reactors, the reprocessing, the support and the assembly plants and their current condition.

## REACTORS

### SAVANNAH RIVER PLANT

Status
- Aging; 33 years old
- Operating at 50% power -- estimated 2-year recovery program

Vulnerabilities
- Unanticipated future safety issues
- Changing Regulatory Requirements
- Containment vs Confinement (Perception)

### HANFORD SITE

Status
- In standdown since January 1987 to implement Safety Enhancement Plan (SEP)
- Restart scheduled - early 1988
- Life limited to 3-5 years (graphite growth problem)

Vulnerabilities
- Unanticipated future safety issues
- Lawsuit over EIS
- Legislation prohibiting restart

With regard to the reactors, as the Under Secretary has pointed out, the three remaining reactors at Savannah River are 33 years old. They are operating at 50 percent power. We estimate that it will take 2 years to complete the analytical program necessary to bring those reactors back up to close to 100 percent power. They are vulnerable in the following sense.

There may be unanticipated future safety issues. While we do not know of any life-limiting features for the three Savannah Reactors, we cannot predict that there will not be one. Certainly, regulatory requirements are changing, and, certainly, the containment versus confinement issue is one of great public perception.

At Hanford, N Reactor has been down since January 1987, when the Under Secretary shut it down to implement the safety enhancement plan. Restart is scheduled for early 1988. But it is life limited, even after restart. It is life limited to 3 to 5 years because of graphite growth problems.

[Slide deleted.]

This is a photograph of one of the reactors at Savannah River. The three reactors, P, K, and L, are all very similar.

[Slide deleted.]

This is a photograph of the N Reactor on the Hanford reservation in the State of Washington. This [indicating] is the Columbia River. The N Reactor, as you will recall, provides steam to the Washington Public Power System, which converts it into electricity.

## PROCESSING

**SAVANNAH RIVER PLANT**

Status
- Chemical processing facilities operating -- being upgraded
- Pu Metal line operating -- needs extensive upgrade/replacement

Vulnerabilities
- Funding limited
- Plutonium feed limited by end of 1988 due to reduced reactor power

**HANFORD SITE**

Status
- PUREX Chemical processing facility operable (currently down for maintenance and inventory)
- Pu Metal line down -- projected restart Feb 1988

Vulnerabilities
- Safety concerns (seismic)
- Feed limited due to N Reactor standdown

**LOS ALAMOS NATIONAL LABORATORY**

Status
- TA-55 Plutonium Laboratory processing Rocky Flats scrap

Vulnerabilities
- Waste disposal
- Using national laboratory for production mission

The step after the fuel is taken from the reactors is to take it to our processing facilities. The processing facilities at the Savannah River plant are operating. They are very old and have been upgraded and will continue to be upgraded.

The plutonium metal line is operating in Savannah River but needs extensive upgrade.

We have been funding limited and a large concern at the moment is the fact that with the reactors running at 50 percent power, the feed for those processing plants at Savannah River is limited.

At the Hanford site, the Purex plant is currently down for maintenance and inventory—routine. But it is operable. The plutonium metal line in Hanford is down and projected to restart in February 1988. There has been an issue about the seismic stability of that facility which we believe we have resolved, and which we hope will allow us to restart it in February.

Once again, there is that limited feed due to the long N Reactor standdown.

[Slide deleted.]

Another key facility in terms of providing plutonium for our weapons is the TA-55 facility at Los Alamos, which processes scrap material from Rocky Flats.

We have a waste problem when we operate this facility at Los Alamos as a production facility, in addition to not wanting to use a laboratory, a national laboratory research facility in a production mode, which is what we are now doing.

[Slide deleted.]

Just to remind you of the size and complexity of these facilities, this is one of the reprocessing canyons at Savannah River. This is F Canyon at Savannah River.

[Slide deleted.]

A similar facility in the Northwest is shown here. This is the Purex reprocessing facility on the Hanford Reservation.

## SUPPORT FACILITIES

### FEED MATERIALS PRODUCTION CENTER (Fernald, Ohio)

Status

- Aging facilities in need of major upgrades -- upgrade projects underway

Vulnerabilities

- State lawsuits
- Federal Facilities Compliance Agreements
- Groundwater contamination

### SAVANNAH RIVER PLANT AND HANFORD SITE

Fuel Fabrication Facilities Old But Operational

- Being upgraded or replaced

In terms of support facilities, which are key to the operation of this complex, in Fernald, once again, those facilities were built in the fifties. Major upgrades are needed. Upgrade projects are underway. Several problems there are associated with lawsuits, with the Federal Facilities Compliance Agreements, with ground water contamination, all of which we believe are manageable, but, nonetheless, indicative of the fragility of this entire system.

At Savannah River and at Hanford, the fuel fabrication facilities are old, but they are indeed operational.

[Slide deleted.]

This is a photograph of the feed materials plant in Ohio, the Fernald plant.

# WEAPON FABRICATION FACILITIES

ROCKY FLATS PLANT (Fabrication of Plutonium Parts)

Status

- Operating -- aging facilities in need of upgrade

Vulnerabilities

- Encroaching population/ pressures to relocate
- Pu facilities seismic and wind resistance
- Mixed waste disposition -- incineration
- Consent Orders
- Soil and runoff water contamination
- Plutonium Accountability

Y-12 (Fabrication of Uranium Parts)

Status

- Operating -- aging facilities

Vulnerabilities

- Environmental contamination
- Burial ground cleanup
- Hazardous waste disposal/ storage

With regard to our fabrication facilities in Rocky Flats, the Rocky Flats plant, which, of course, is many, many facilities, is operating—in the one area outside of Denver. It is operating.

Many of the facilities are aging, and Buildings 771 and 776, which handle plutonium, need upgrading.

We have many concerns at Rocky Flats, which range from the encroaching population area to mixed waste disposition questions, accountability of the material there. But the facilities are operating at this time.

Similarly, in Tennessee, at the plants where we provide highly enriched uranium for the weapons program, they are operating. We have had some environmental problems with the Y-12 plant in Tennessee. Burial ground cleanup is a problem, and that is the case in most of our other facilities' handling of the hazardous waste. Its ultimate disposal is a continuing concern.

# WEAPONS FABRICATION FACILITIES

MOUND (OHIO) (Tritium Loading and Detonators)

Status

- Operating -- aging facilities being upgraded

Vulnerabilities

- Encroaching population
- Facility contamination

PANTEX (Weapon Assembly)

Status

- Operating

Vulnerabilities

- Transportation

At our weapons facilities in Ohio, in Mound, the tritium loading and detonator facility is operating. The problem there is much like that of Rocky Flats. It is the population that is increasing, encroaching around the Mound facility, and a long-term facility contamination problem is one that is worried about there.

Pantex, the final weapons assembly facility in the Panhandle of Texas, that plant is operating. It is vulnerable in the sense that it is isolated, and transportation of materials to Pantex and the weapons away from Pantex are very visible.

[Slide deleted.]

This is a photograph of one of the facilities at the Rocky Flats plant, outside of Denver, CO.

[Slide deleted.]

This is a photograph of the Y-12 plant in Oak Ridge, TN, where the highly enriched uranium is produced.

[Slide deleted.]

[Deleted.]

Our ability to maintain the current level of weapons readiness is uncertain, and certainly our ability to resume full capacity is questionable.

Well, what are we doing?

We are attempting to restart N Reactor. We hope to be in a position shortly after the first of the year where we can assure Members of Congress and others that the safety enhancement program has been completed such that we can restart that reactor.

We are beginning a very lengthy and very time consuming analytical program which will allow us in late 1989 to bring the Savannah River reactors back up closer to 100 percent power. We are doing things that would prevent further erosion of our production capacity by putting money back into these older facilities.

We are accelerating the residues recycled by trying to squeeze more plutonium from the scrap that is in the pipeline throughout this entire system. We also are accelerating the Special Isotope Separation Project, which is a project in Idaho, that will take fuel grade plutonium, remove the unwanted isotopes, and allow us to use that in the weapons program in the early 1990s.

Finally, we are planning for new production reactor capacity. Ongoing within the Department right now are discussions about how we will arrive at which technology and which cycle we will use for the new production reactor capacity. To assure long-term tritium is indeed a necessity and a very critical item.

Mr. SALGADO. Mr. Chairman, I would just end the presentation with, I think, two to three points.

Number one, you heard the briefing yesterday from the Defense Department. I think it is crucial to look at the question of uncertainty.

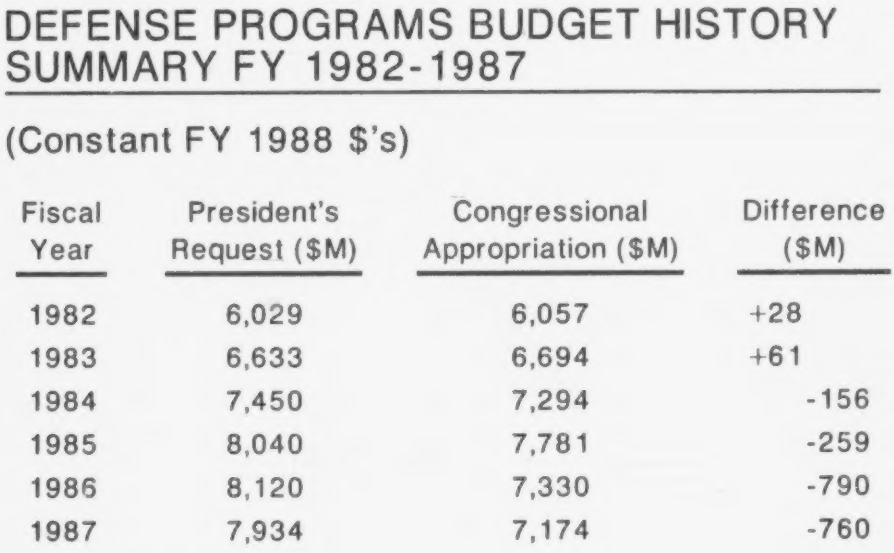
[Slide deleted.]

The yellow line shows current production levels, at 50 percent at Savannah River, with the N Reactor down. The requirement line is the proposed present stockpile memorandum on which you were briefed yesterday.

[Deleted.]

The facilities that we have are aging. They have monumental environmental problems. They are a legacy from the past that we must continue to address.

At the same time, the reality of today is fiscal constraint. I would like to show you and draw to your attention briefly the budget profile from 1982 to 1987.

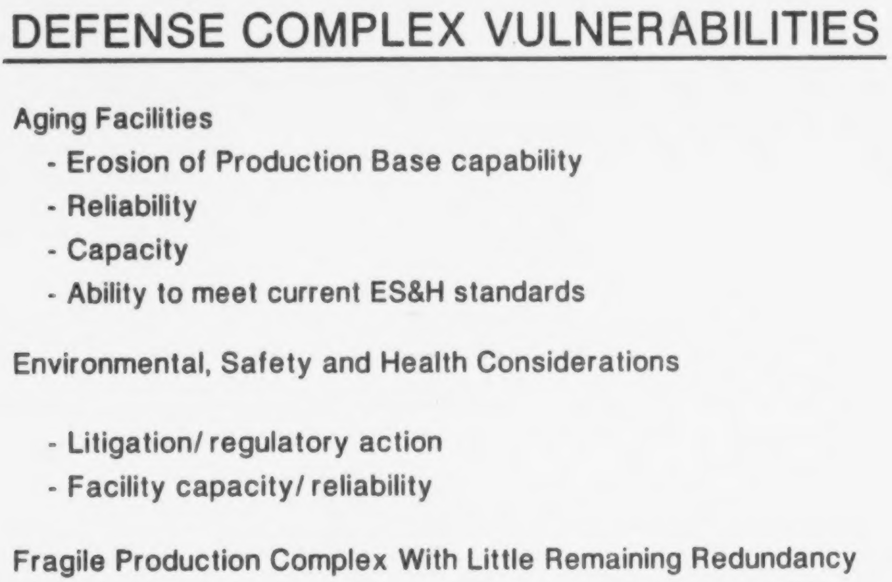


## DEFENSE PROGRAMS BUDGET HISTORY SUMMARY FY 1982-1987

(Constant FY 1988 $'s)

| Fiscal Year | President's Request ($M) | Congressional Appropriation ($M) | Difference ($M) |
|---|---|---|---|
| 1982 | 6,029 | 6,057 | +28 |
| 1983 | 6,633 | 6,694 | +61 |
| 1984 | 7,450 | 7,294 | -156 |
| 1985 | 8,040 | 7,781 | -259 |
| 1986 | 8,120 | 7,330 | -790 |
| 1987 | 7,934 | 7,174 | -760 |

This indicates, sir, that given the constraints, age, and environmental problems that we are facing, the President's budget has suffered some setbacks in the congressional appropriations process, particularly in the 1986-1987 timeframe, which has made it difficult to address some of the safety and environmental issues that we are concerned with today from the Department of Energy's standpoint.



# DEFENSE COMPLEX VULNERABILITIES

Aging Facilities
- Erosion of Production Base capability
- Reliability
- Capacity
- Ability to meet current ES&H standards

Environmental, Safety and Health Considerations

- Litigation/ regulatory action
- Facility capacity/ reliability

Fragile Production Complex With Little Remaining Redundancy

In conclusion, Mr. Chairman and gentlemen, the age of the facilities is such that they have a fragile nature and there is interdependence on each other. We utilize basically scrap recovery, retirements of weapons, and new production to meet the national security demands of the country.

Our ability to meet not only current maintenance requirements, but also to meet the requirements of those weapon systems that have been approved by the President and authorized by the legislative branch is suspect. [Deleted.] Our ability to meet current ES&H demands also is suspect.

This is a fragile complex with facilities interwoven with and interdependent upon each other. There is 30 years of history and 30 years of legacy that we have to attempt to address, not only today, but tomorrow.

I would welcome any questions, Mr. Chairman.

Gentlemen, that ends our formal presentation.

Senator Exon. Thank you, Mr. Salgado. I appreciate that very much. It was an excellent presentation.

Let us get to our questions. I suggest that we go to at least 5 minutes of questioning each before we go into open session.

Is the current capacity of our nuclear weapons production complex adequate to meet the requirements for nuclear material now and in the next 5 years? [Deleted.]

Mr. Salgado. [Deleted.]

Senator EXON. Mr. Salgado, let me ask you this question.

The testimony certainly suggests, or it suggests to me, at least, that the nuclear weapons complex is extremely fragile—and I would emphasize the world "extremely."

Is this a result of safety concerns, or the age of the complex, or a combination of both? What should be done to make the complex more robust and, therefore, national security more assured?

Mr. SALGADO. I would indicate, Mr. Chairman, that it is a combination of the above. I think it is a very fragile complex; age has caught up with the complex. With the age of the reactors 30 years plus, if the administration and Congress in their wisdom determine that it is in the best interest of this country to build a new production reactor to maintain the tritium supply for the national security of this country, the reactors that we currently have on line must operate for at least an additional 10 years.

Therefore, their life expectancy, the Savannah River reactors particularly, must be at least 40 years.

Senator EXON. That is 10 years over what your optimistic projections are, or your reasonable projections, is it not?

Mr. SALGADO. That is 10 years over what the commercial reactor design life specifications are, sir.

Senator EXON. Is there any indication that there could be or would be any difference in the life between a commercial reactor and this one?

Mr. SALGADO. I think we are mixing a little bit of apples and oranges here. The reactors at Savannah River are relatively unique. They are heavy water reactors. They are low power reactors, with the primary purpose, of course, of the production of tritium and plutonium.

Commercial reactors are high power reactors for the generation of power. So I do not believe it is comparable.

But there were unforeseen problems with C Reactor. When those cracks developed in C Reactor, there was no scientific means to repair them. Therefore, there are uncertainties we must deal with when we utilize these aging facilities.

Senator EXON. Or, to put it another way, if something should happen unforeseen, but not unexpected, tomorrow, in South Carolina, we would be in a tremendously serious position, would we not?

Mr. SALGADO. Sir, we would.

Given the fact that we must maintain those warheads that are on-line for the nuclear deterrent and replace that tritium [deleted] there could be an erosion of our nuclear deterrence.

Senator EXON. Thank you.

Senator Thurmond.

Senator THURMOND. Thank you very much.

Are you aware that the Board is, in effect, able to force the President to reconsider the decisions he has made in the annual stockpile memorandum?

Mr. SALGADO. I'm sorry, Senator, but I could not hear you.

Senator THURMOND. Are you aware that the Board is, in effect, able to force the President to reconsider the decisions he has made in the annual stockpile memorandum?

Mr. SALGADO. Yes, sir.

Senator THURMOND. Given this ability to force changes in the stockpile memorandum, what impact will this have on our nuclear weapons program?

Mr. SALGADO. I firmly believe, sir, if, in fact, there is an external force which would be able to change the President's nuclear stockpile memorandum, it would create a major uncertainty, number one, about the ability of DOE facilities to maintain certain goals and objectives, and I think it would undermine the nuclear deterrent of the United States.

Senator THURMOND. Do you agree that Title I of this bill establishes a zero risk standard for the Board?

Mr. SALGADO. I do, sir.

Senator THURMOND. What is the implication of the implicit standard for the nuclear weapons complex?

Mr. SALGADO. It would be my opinion, Senator, that essentially this would create an adversarial process which would jeopardize our ability to maintain flexibility and balance between the stockpile memorandum, the nuclear deterrence, and a strong environment and safety program.

Senator THURMOND. In what places in the United States is tritium made?

Mr. SALGADO. Sir, at Savannah River.

Senator THURMOND. That is the only place, isn't it?

Mr. SALGADO. That is correct, sir.

Senator THURMOND. And tritium is essential to this weapons production, is it not?

Mr. SALGADO. It is the most important product that we in the Department of Energy produce for national security concerns.

Senator THURMOND. Now, I believe the Secretary recommended that a new production reactor be built and be started. The appropriation for this year contains how much?

Mr. SALGADO. Senator, that is not exactly correct.

The White House National Security Staff and the President have been briefed about the vulnerability of this complex, and during the course of the 1989 budget process, the administration will begin the decisionmaking process for the new production reactor.

Senator THURMOND. Our bill contained an authorization for an appropriation to start the new production reactor.

Mr. SALGADO. Senator, I believe that the legislative branch has moved forward. We are putting funds in for both the design and construction of a new production reactor.

The President's budget for 1988 does not contain any money for a new production reactor at this time.

Senator THURMOND. But Congress put some in anyway.

Mr. SALGADO. Yes, sir. It did.

Senator THURMOND. And from your standpoint, being an expert on this subject, do you feel that it is essential that we go forward without delays?

Mr. SALGADO. I would indicate, sir, that I feel that a new production reactor is essential to the future nuclear deterrent of this country. I believe that there are countervailing issues that must be weighed by the President before an administration decision is made.

Senator THURMOND. I believe the reactors at Savannah River are heavy water, are they not?

Mr. SALGADO. Yes sir.

Senator THURMOND. The new production, is it your thinking that we should again build a heavy water reactor?

Mr. SALGADO. Sir, if, in fact, the administration determined that a new production reactor was in the best interest of the national security of the country, the Secretary would undertake a process by which all technologies would be reviewed to determine which would best meet the national security concerns of this country in the shortest possible timeframe.

Senator THURMOND. You do have a tremendous facility at the Savannah River plant, don't you?

Mr. SALGADO. Yes sir. We do.

Senator THURMOND. What investment do you have there? You have land, facilities, you have several billions of dollars invested, don't you?

Mr. SALGADO. I think we would probably estimate that it is worth between $15 billion and $17 billion in facilities and land, and in the commitment of the people there who work our facilities.

Senator THURMOND. How much did you say?

Mr. SALGADO. About $15 billion or $16 billion.

Senator THURMOND. About $15 billion or $16 billion.

OK.

Those are all the questions that I have right now, Mr. Chairman.

Thank you.

Senator EXON. Thank you.

Senator Glenn.

Senator GLENN. Thank you, Mr. Chairman.

Let me just correct some misconceptions once again about the bill that I have proposed and that is one of the reasons for this meeting, though I know there are others. We want to keep the whole committee involved in this whole process, but the bill is a focal point anyway.

This Board would not force, contrary to what you said, Mr. Salgado, the Board would not force what Senator Thurmond said, which you agreed with. The Board would not force the President to make a change in the stockpile memo. What the Board would do is point out safety concerns and if those could not be met by the Secretary, then the Board, in the interest of safety for the people and the workers would say that this goes to the President.

Now, the President is the only person, the only office in this country that has all the necessary facts—the Secretary does not—as to the international situation, as to the plutonium requirement necessary. The President may know that the country is involved in an arms control negotiation or something like that.

The President would make the decision, then, as to whether it was important enough to waive the safety considerations in the interest of production because he knows it is necessary.

That is all this Board does. It does not do any of those other things you said at all. It does not do what Senator Thurmond said it does. It does not try to set a zero risk standard. I don't know how you would do that. There is no such thing. I don't know of any way you would have a zero risk standard.

That is a great objective. But we do not have it in the civilian industry, we don't have it in the weapons production program, we don't have it anywhere.

I don't know of anything that has zero risk. I don't know if there is zero risk when I drive in in the morning. I suspect it's far from it. But there is certainly not zero risk here.

What we have seen over the past 20 or 25 years—and I could give a hundred different examples here that you are aware of, as am I—is where the DOE production facilities have not been held to the same safety standards that have been applied to the civilian side of the house by NRC.

But that is all we are trying to do—say that the DOE—not necessarily on your watch, either. It has developed over 20 years or more. It is an abysmal record. Senator Thurmond is very lucky that he was not down there touring in a helicopter a year or so ago at Savannah River when that place had run for 7 years over capacity of the cooling system to handle the reactor.

Augusta, Georgia, is 20 miles away from the center of that facility, and if that reactor had a malfunction, had started to melt down or had gotten out of control, the core cooling was not adequate to handle it. That is the reason we are running Savannah River at 50 percent right now. That's it.

So, it was running at over capacity.

With an outside Board to look at these things, why I would think you would welcome, you would absolutely welcome an outside check on this as it is so important. And it does not shut down one single thing without Presidential OK.

I am with you on everything you said as far as requirements, as far as the necessity for tritium and so on. I am with you 100 percent. But I do not see any reason why we are willing at this point to fight safety concerns any longer.

They have been neglected. We have radioactive material in the wells around Fernald, and you are fully familiar with that. We have contamination at Mound and we have it in other sites. We had GAO do five studies for us and they show that it is endemic throughout the whole DOE system.

Now, it is not your fault. But, because it was ignored for so long, we have put our safety concerns over into places like TMI and the civilian reactors, and we have ignored things in DOE because it was all under wraps, it was all secret. And where production came up against safety, we opted for production.

That is what got us into this.

Now, all we say with this bill is this. It does not say zero risk. I agree with you, tritium has to be produced. I agree with the importance of Savannah River. But I see no reason at all why we can't try to make this as safe as we possibly can.

I know you are finely tuned into this. But what this says is this is so important that, if we apply civilian industry standards to the DOE complex, we would shut down right now every single part of that whole facility.

We would shut down right away if we applied the same civilian standards that ACRS applies around the country to the civilian reactors.

Now I don't think anybody disagrees with that, nobody that I know of.

We have brought that up a number of times and everybody seems to agree with that, in and out of DOE.

I just want to set this record straight so that we do not have this go unchallenged here, that we are opting for zero risk and that I somehow am forcing the President to make a stockpile memo change. That absolutely is not true.

This forces the President only to say that for security reasons, we will keep operating these places even though the Secretary of Energy and the outside observers say that the whole thing is unsafe, that it is a danger to the people working in there, which seems to be the case at some of these facilities when we got all of this started about 4 or 5 years ago.

I have used up all of my 5 minutes as my time has expired. But I just have to set the record straight. I don't want this bill to be misrepresented as something that it is not. It's not a bugaboo. It is not going to shut down anything the President says not to shut down. The President is the repository of all of the factors coming together, from the State Department, from the technical people, from the Secretary of Energy, the Secretary of Defense, on what is needed from the stockpile memorandum—the whole thing that General Herres outlined for us yesterday.

All this does is say that safety concerns can be raised if they are beyond the capability of the Secretary to take care of. Then they get bucked to the President, because he is the one who has the whole picture, and he can say we will proceed, we will go right ahead and produce tritium at Savannah River, we will go right ahead because national security is more important than the additional safety risks that we will take by not shutting the thing down.

So I just wanted to straighten that out.

Senator THURMOND. Mr. Chairman.

Senator EXON. I will recognize you, Strom, in just a minute but I do want to give the witness a chance to respond. Since the witness and Senator Glenn seem to agree on everything except that one point, it should not take too long to clarify that.

I think what Senator Glenn was trying to bring out was that your answer to Senator Thurmond's question did not agree with his interpretation of his bill.

Maybe that is what you are trying to clear up, Senator Thurmond.

Senator THURMOND. Yes. Go ahead and let him answer and then I will respond.

Mr. SALGADO. Mr. Chairman, Senator——

Senator THURMOND. Speak loud enough so that we can all hear you.

Mr. SALGADO. Senator Glenn and I have met several times to discuss his bill, and I have had the pleasure of testifying before him.

We do agree with the whole myriad of underlying philosophy, objectives, and goals of his bill. Where the fundamental disagreement comes is who should be responsible for balancing between national security concerns and environmental and safety concerns.

We feel that the appropriate place for that balancing, for that judgment to be made, is not the desk of the President, but that of the Secretary of Energy.

Our concerns are twofold. First of all, every safety concern that the Secretary does not agree with would be elevated to a Presidential decision.

We feel very strongly that the purposes and objectives of Senator Glenn's bill are fine. But we do disagree on that fundamental and important question of where the burden of responsibility for balancing funding levels and the technical recommendations by an independent board should be placed while also addressing the national security concerns of the country. We feel that responsibility should reside with the Secretary of Energy.

Senator EXON. Mr. Salgado, thank you very much.

Let me say that we are off on a subject here that is very important, but we are also off on something that should be discussed in open session, rather than in closed, or secret session, as we are talking now. This is something that I want the public to know and understand also.

Senator Quayle.

Senator THURMOND. Mr. Chairman, may I say just a word before we leave this subject?

Senator EXON. Yes, of course.

Senator THURMOND. I just want to say that he explained the matter and it won't be necessary for me to make any further explanation.

Senator EXON. Senator Quayle.

Senator QUAYLE. Thank you, Mr. Chairman.

As far as the safety operation problem that we have, which Senator Glenn and others have referred to, wouldn't it be helpful to resolve the allegations about the safety operation with the fact that we would be able to build a new heavy water production reactor, with all the new technology that is available to us? Wouldn't that be a prudent course of action, to look at some of the possibilities of safety operation problems?

Mr. SALGADO. Senator, I would agree that I think this country and this Department need to modernize their facilities, not only with a new production reactor, but also on the other production sides of the house. Essentially, the modernization of the weapons complex within the Department of Energy is something this country has to address.

It is a large ticket item. It will require a lot of money, not only for new production reactors, but also for other assembly facilities, and testing facilities as well.

I think we agree on that.

The problem, Senator, of course, occurs where even if today the Congress and the executive branch determine to go forward with a new production reactor, the best estimates, or guestimates, are that it will be 10 to 12 years before a new production reactor can come on-line and produce. Therefore, in the intervening decade, the country and DOE must face environmental and safety concerns about operating these facilities.

Senator **Quayle**. Should we go forward with building a new heavy water reactor production facility considering the budget restraints that you obviously are aware of?

Mr. **Salgado**. I think you have to weigh the national security concerns. The projection of a nuclear deterrent is part of this country's foreign policy and international policy and I think it is something the executive branch has to come to grips with in this budget cycle.

Senator **Quayle**. What would be your personal recommendation?

Mr. **Salgado**. My personal recommendation would be that a new production reactor is of essence.

Senator **Thurmond**. Is what?

Mr. **Salgado**. Is of essence.

Senator **Quayle**. Does that mean that we ought to go forward with it or not?

Given the budget environment, given the charts that you have shown us, would you recommend to this committee that we ought to proceed ahead or not?

Mr. **Salgado**. My personal recommendation to the Secretary of Energy would be that we must seriously consider it and go forward with a new production reactor, but that issue also should be worked within the executive branch and brought before the President and OMB.

Senator **Quayle**. But your recommendation and the information that you have suggests that we should go forward with this?

Mr. **Salgado**. Sir, given the information that I have, I do not believe there is any other course of action on behalf of the Department of Energy.

Senator **Quayle**. Why would this take 12 years when a commercial reactor basically, you know, some are built in 2 years?

Mr. **Salgado**. I am not quite sure, sir. The Shoreham plant up in New York is not even on line yet. I think there are a whole series of things that have to be addressed.

Senator **Quayle**. I mean, there are a whole series of things and you cannot do anything sooner than 12 years if you got a commitment from Congress and the administration?

Mr. **Salgado**. I think there are possibilities to bring another reactor on-line, depending on the technology that you utilize. There are potential opportunities in the State of Washington, where WNP-1 currently exists. Some people feel that you could bring that reactor on line in a short period of time. That would be a pressurized water reactor.

I think there are two things that have to be addressed here, though, which Senator Glenn is concerned with. That includes the fact that a new reactor that comes on line either has to be comparable with commercial reactors, or "licenseable". Therefore, I think there has to be an in-depth design process. There has to be sufficient dialog.

Senator **Quayle**. I would think you might be able to do it, I would hope, more quickly than 12 years.

Would you put the chart back up where you showed the line of requirements going up and what the capacity was going to be, [deleted].

The question is what is it that we should be doing on supply uncertainty? What assumptions are you plugging into there that we are not going to do that we should be doing that would get us up to the requirement?

Mr. SALGADO. The assumptions that are currently there are these.

Senator QUAYLE. What should we be doing in those assumptions [deleted].

Mr. SALGADO. Well, I am not saying that we will not be doing.

Senator QUAYLE. But you assume that we are not because you have that chart, the current level of production being static [deleted]. You have supply uncertainty there.

Mr. SALGADO. Correct.

Savannah River, operating at 50 percent power—increase Savannah River's power activity level. That will therefore diminish that curve, depending upon what level power we are able to bring that up to. We would anticipate within 2 years that we will bring it back up to 90 to 100 percent power.

Senator QUAYLE. If we do that, will the line change, then?

Mr. SALGADO. The line will change. Yes.

Senator QUAYLE. So you are assuming that we will not do it, increase the capacity at Savannah River, or not?

What I am trying to figure out is what assumptions have you made there in that chart [deleted].

Mr. SALGADO. The assumptions were the current status, as of today: 50 percent power, N Reactor down, SIS not on line——

Senator QUAYLE. What is SIS?

Mr. SALGADO. That is the Special Isotope Separator which will give us additional Pu in about the 1993-1994 timeframe.

Senator QUAYLE. So you assume that the N Reactor will not be up under that?

Mr. SALGADO. Yes, sir.

Senator QUAYLE. You are assuming the capacity at Savannah River at 50 percent and that the SIS will not be connected. [Deleted.]

Mr. SALGADO. Yes, or close thereto.

Senator QUAYLE. Or close thereto.

Thank you.

Thank you, Mr. Chairman.

Senator EXON. Senator Wirth.

Senator WIRTH. Mr. Secretary, who sets the requirement level?

Mr. SALGADO. The requirement level is set through joint operations between the Department of Energy and the Department of Defense through the Nuclear Weapons Council.

Senator WIRTH. [Deleted.]

Mr. SALGADO. That is correct, sir.

Senator WIRTH. And if those assumptions were a different kind of target, if those assumptions were a different kind of damage from each nuclear device, the requirement line would go down, wouldn't it?

Mr. SALGADO. There is that possibility, depending on what systems we are talking about.

Senator WIRTH. What difference would it make what systems you are talking about? The systems are driven by the targets, isn't that correct? The systems are not self-sustaining phenomena. We are not building nuclear weapons for the purpose of putting nuclear weapons on platforms. What we are doing is building nuclear weapons for the purpose of meeting what we assume the targets ought to be.

Isn't that correct?

Mr. **Salgado**. That's correct.

Senator **Wirth**. So, if you changed targeting or if you changed the damage factor that each weapon has to inflict on each target, the requirement line goes down, isn't that correct?

Mr. **Salgado**. I would ask Troy to respond on a technical basis because it may go up if you do that.

Senator **Wirth**. How could it go up if you have fewer targets?

Senator **Quayle**. Are you talking about megatonnage or yield?

Mr. **Wade**. If you went to a different targeting strategy, Senator Wirth, there is a scenario that says you may indeed change weapons, indeed change yield, and you may need to increase the yield to reach your new target set.

Senator **Wirth**. But if you stopped targeting court houses and were targeting only weapon silos, I mean, presumably your requirements would go down. Right?

Mr. **Salgado**. If you reduced the targeting, if we are talking about the reduction of warhead capability, then, obviously, yes, the requirements would go down.

Senator **Wirth**. Well, there are two things within that. One is the number of items that are targeted. I mean, if you have fewer items targeted or less duplication in targeting, therefore you would require fewer weapons, right?

Mr. **Wade**. Yes.

Senator **Wirth**. Second, if you reduced back to where we were 10 years ago, the damage level assumed from each weapon, if you were going back to where we were 10 years ago, your requirement level would also go down.

Isn't that correct?

Mr. **Wade**. Senator, I don't think it is quite that clear. Some of the weapons 10 years ago were of very large yield.

Senator **Wirth**. But that is not my point. It is what damage you wanted to inflict on a particular target and the damage that we have required of each target has changed significantly over the last 10 years.

For example, it used to be on a variety of targets that what we were attempting to do was to only destroy the surface, all the surface facilities—you know, cranes, various transportation modes and so on—in a particular area. That then escalated to destroy most of the underground structure as well. That escalated again to destroy everything that was in those underground structures.

So we had a change from here [indicating]; we escalated the damage that it had to inflict, and it had to increase to here [indicating], and then it had to increase to here [indicating].

The point that I am making is not to argue this but to say that [deleted] is to have different assumptions behind what the requirements are, that if you have a different kind of damage that has to be inflicted by each weapon, or if you have fewer targets to be damaged, your requirement line is not as steep. Isn't that correct?

Mr. WADE. Clearly it is a possibility. Yes, sir.

Senator WIRTH. Let me ask you this.

Is your biggest concern, Mr. Salgado, about Senator Glenn's legislation that the Board would somehow be able to shut down the production capacity? I have heard that phrase used a number of times in the last week, the Board shutting down the capacity.

Is that a fundamental concern?

Mr. SALGADO. I think that is one of the concerns. I think that there are other operational and functional concerns.

Senator WIRTH. Is there anything in the legislation that says the Board is able to shut down the operation?

Mr. SALGADO. No, there is nothing in the legislation per se that says the Board——

Senator WIRTH. Then why are we continuing to say that the Board would be able, through its actions, to shut down production if it is not in the legislation? Why is that argument made again and again and again? I have heard it a lot of times, that the Board would be able to shut down our production capability.

Mr. SALGADO. Essentially, unless (1) the President exempts a facility for national security, (2) the Secretary agrees with the recommendations of the Board, or (3) the President determined a recommendation was not technically or economically feasible the law would require that he shut the facility down.

Senator WIRTH. Is that correct?

Senator GLENN. It is a Presidential decision.

Senator WIRTH. It is a Presidential decision, so the Board does not shut anything down.

Mr. SALGADO. The option to the President is either require an exemption—that is my understanding—or basically the facility should be shut down.

Senator WIRTH. My time has expired, but I am sure we will have another round on this.

I would just note, Mr. Salgado, that my guess is there are going to be a lot of other potential events much more likely to shut down production than Senator Glenn's legislation, and those would be the monumental environmental problems—your quote—that the complex faces. Those are safety issues that it faces. Those are health issues that it faces.

We would be much more likely, I will bet, if we were to do nothing, to shut down this whole complex at some point or shut down a critical part of it, than with Senator Glenn's legislation. I think that is the focus of what we are trying to get at.

I hope we will have another round on this.

Thank you, Mr. Chairman.

Senator EXON. Let me say that we have spent well over half our closed session testimony on things that properly should have been brought up in the open session. The line of questioning just followed by the Senator from Colorado is one of those.

It is my turn next. I have asked all the questions that should be in closed session. I think we are all anxious to go into open session, where many of these things can and should be discussed, things which we have been discussing here in this discussion.

I would just ask this. Is there any one question that any member of the committee has which that member believes is necessary for and obviously should be in closed session?

If not, then we will go into open session.

Senator **Glenn**. Jim, may I just have 30 seconds?

Senator **Exon**. Sure.

Senator Glenn.

Senator **Glenn**. Here is what it is. It says the President could specifically exempt the facilities from complying with the recommendation by determining that it is in the paramount national security interest of the United States to provide such an exemption. That is all the bill provides. It says when it gets kicked up there, the President makes a decision. He and he alone knows what is going on with arms control negotiations and our requirements, the national stockpile, all these other things, and if the health and safety matters are up to him, he can say okay, we will accept that additional safety risk because in the national security interest we need that facility producing tritium or plutonium.

It is a Presidential decision. The Board does not do anything. The President does that. He can say that we will keep right on producing, that it is in the national security interest.

Senator **Exon**. Senator Glenn, I am going to move along now. I don't want to cut you off and I am going to go out of order. I am going to let you ask that question as soon as we go into open session.

Again, the Chair asks the question: is there anyone who has a question that might be covered by national security before we go into open session?

Hearing none, we will adjourn this meeting for just a few moments and will go right into open session.

We will reconvene in 1 minute.

[Whereupon, at 3:12 p.m., the committee adjourned, to reconvene upon the call of the Chair.]

## OPEN SESSION

The subcommittee reconvened in open session pursuant to notice, at 3:13 p.m., Senator J. James Exon (chairman) presiding.

Present: Senators Exon, Glenn, Wirth, Thurmond, and Symms.

Staff present: Robert E. Bayer, Robert F. Bott, Sherri Wasserman Goodman, William E. Hoehn, Jr., George K. Johnson, Jr. and T. Kirk McConnell, professional staff members; Mickie Jan Wise, staff assistant.

Also present: Jeffrey B. Subko, assistant to Senator Exon; Edward M. McGaffigan, Jr., assistant to Senator Bingaman; Kevin T. Knobloch, assistant to Senator Wirth; Terrence Lynch, assistant to Senator Shelby; Henry D. Sokolski, assistant to Senator Quayle; and Samuel J. Routson, assistant to Senator Symms.

### OPENING STATEMENT BY SENATOR J. JAMES EXON, CHAIRMAN

Senator **Exon**. The subcommittee will please come to order.

We are now in open session. I have a short statement for the open session and then we will proceed in the ususal fashion.

We are pleased to welcome you Mr. Salgado. This session will examine the safety record of DOE nuclear facilities and the impact on DOE's nuclear operations that would be created by S. 1085. Our goal in this area should be to provide the highest reasonable level of safety for our nuclear facilities without compromising our ability to meet nuclear weapons requirements.

It is not the goal that is at issue today. It is the means to achieve it. I have a number of concerns about S. 1085.

I am concerned that S. 1085 will not allow us to see the forest from the trees. Chartered to examine every possible safety issue, rather than focusing on those that would present a significant adverse effect on health and safety, the Board created by S. 1085 risks not addressing these most important issues.

I am concerned that, in striving for a risk-free world, the Board created by S. 1085 will not be charged first and foremost with coping with the most serious adverse effects, such as an accident at Chernobyl.

I am concerned that if the recommendations of the Board will not be restricted by cost considerations, they will not be able to address the most important tradeoffs we face in the area of nuclear safety—whether to invest heavily in upgrading existing facilities or in providing new production capacity so that older plants can be closed.

The Defense authorization bill for fiscal year 1988 directs the Department of Energy to report to Congress on just how its limited resources can best be utilized to modernize and thereby to improve the safety of the nuclear weapons complex.

S. 1085 would not have DOE face these hard choices. I am also concerned that S. 1085 has no provisions for funding the Nuclear Safety Board's recommendations.

The report to S. 1085 admits that the funds to implement the recommendations of S. 1085 may not be available and "may pose significant difficulties in light of our current budgetary process."

In a budget that has been put through the straightjacket of Gramm-Rudman-Hollings or worse, where will the funds to implement recommendations that could easily run into billions of dollars come from?

Finally, I am concerned that S. 1085 will force the President to become deeply involved in matters that require technical resolution. The President should not have to certify that a recommendation is technically infeasible. I wholeheartedly support the goal of creating an effective and practical oversight board for DOE facilities.

Groups such as the Roddis panel have made valuable contributions to the safety of DOE activities. The Roddis panel may be a model for establishing a permanent oversight board.

Again, Mr. Salgado, I want to thank you for being here today. We appreciate your appearance before the committee to discuss this vitally important matter of defense and nuclear safety.

I just want to emphasize once again that I do not quarrel for a moment with the goal of S. 1085. I just think that we had better take a pretty hard look at what S. 1085 might do far and beyond what it is stated to do on the surface.

I call upon Senator Thurmond for any opening statement that he has in open session.

Senator THURMOND. Mr. Chairman, I think you have covered it quite well.

Senator EXON. Mr. Salgado, you have a very lengthy statement for the open session. Without objection, we will accept that in full as a part of the record at this time.

Before you make a summary of this, which I hope you can do, I would yield to Senator Glenn to ask a question that he previously asked just before we went into open session, which I think could as well appear in the record at this time.

After that, but before further questions, we will go back to your opening explanation. I am just keeping the commitment that the chairman made before we went into open session.

Senator Glenn.

Senator GLENN. The question that we had just before we went into open session was to ask you this: Is it your opinion that the Board as constituted in S. 1085 has the power to shut anything down?

## STATEMENT OF JOSEPH F. SALGADO, UNDER SECRETARY, DEPARTMENT OF ENERGY, ACCOMPANIED BY TROY WADE, ACTING ASSISTANT SECRETARY FOR DEFENSE PROGRAMS; DEL BUNCH, DEPUTY ASSISTANT SECRETARY FOR SAFETY, HEALTH AND QUALITY ASSURANCE—RESUMED

Mr. SALGADO. No, sir, it does not have the power, but it has the ability through its course of actions and determinations by the President to close facilities. So it directly does not have the power, but it has the ability through its course of actions to close facilities.

Senator GLENN. How does it do that?

Mr. SALGADO. It does it, sir, by making what would potentially be unreasonable requests.

Senator GLENN. Define "unreasonable".

Mr. SALGADO. Well, that is like trying to define the safety standards, which I cannot define within the bill itself, sir.

The point I am trying to make is that if in fact the Secretary, for whatever reasons, agrees with the Board's recommendations, and the President, through the budget process, made the determination that he was not going to request funds for this specific project, the bill would then close the facility unless at that particular time he made a determination that due to national security concerns, the facility must continue to operate.

So while it does not expressly have the power, sir, the Board has the ability, in certain situations, to force closure of the facility.

Senator GLENN. I disagree strongly with that. The Board only does one thing. The Board is concerned with safety, where safety has been too long ignored in DOE. The record is replete with hundreds of examples of that. I could put them in the record or I could give them to your orally.

All the Board does is say that here is a safety matter for the community, for the people in the plant, we think this is important. They take it to the Secretary. Usually he can resolve that. I am sure he wants to see the plant be safe also.

If he cannot resolve an issue that is very important, then it goes to the President for decision, which is exactly where it should go. He is the only person. The Secretary does not know what is going on with arms control negotiations and all the other inputs from State, Defense, and elsewhere.

The Department of Energy has only been given its marching orders for certain production for the next year. The Secretary does not have all of the information for the coming year.

The Board does not have the power to shut a single thing down. I keep repeating that. All it can do is say: Mr. President, you make the decision.

And as far as the chairman's statement that he did not want to force the President to deal with technical resolutions, that is the President's job when an important matter must be decided that involves a technical background. Then he calls on the expertise of the NSC, the Department of Defense, State, the Secretary of Energy, or any outside group he wants to bring in. That is the President's job to make those tough decisions.

It is not a risk-free world that I am shooting for. I wish I could make it a risk-free world. I cannot. But I am trying to make it far less risky than DOE's record has been through the years. I was telling Senator Thurmond, he is very lucky he did not have something really bad happen at Savannah River.

It is now at 50 percent capacity because we found out the cooling circuits were not adequate to take care of the plant if there was an emergency. It is very lucky something did not happen during the 7 years that plant operated that way.

That is the kind of thing that an outside board could have looked at, could have examined. They could have said: The initial evaluation of this was wrong, we have rechecked it.

That is the kind of examination that we hope will prevent a Chernobyl in this country. That is all I am trying to do. We are just trying to set up a board, and there has to be some reaction to the recommendation. It usually can be at the Secretary's level. If it can't be at that level, then the President makes a decision.

And I repeat again from the legislation. It says the President can exempt the facility from complying with the recommendation by determining that it is in the paramount national security interest of the United States to provide such an exemption.

If the President says the facility operates without taking into consideration those safety matters, so be it, if it's in the national interest to do that. I don't quarrel with that.

I just think this is the way we have to go. I do not see that the Secretary has all of the information that is needed to make those decisions.

Senator EXON. Mr. Salgado, would you please answer the question by the Senator from Ohio.

Mr. SALGADO. I am not sure there was a question there, but I would be more than happy to respond.

Senator EXON. Oh, he meant it to be a question.

Senator GLENN. Well, I asked him originally, Jim, if the Board could shut anything down. He said he realized—and I think I am stating it correctly, paraphasing; correct me if I am not—that the

Board itself could not shut down anything of itself, but it could set up a climate that could result in facilities being shut down.

And I would submit in answer to that that the only time that could occur is if the health and safety concerns are large enough, the President says it gets shut down, and that he says it is OK as far as national security concerns go. That is the only time anything could get shut down.

Senator SYMMS. John, if you will yield, are you not asking them, are they not like the fox trying to guard the henhouse?

Senator GLENN. Absolutely.

Senator SYMMS. What would you say about that?

Mr. SALGADO. Well, what I would say about that is essentially, Senator Glenn had mentioned about the ECCS problems at Savannah River. That was brought to 50 percent power. But to paraphrase you, it was brought to 50 percent power by the fox, by the National Academy of Sciences, which was invited in by DOE in an advisory capacity.

We brought in the National Academy of Sciences in an advisory capacity to look at the Savannah River problems.

Senator GLENN. But after 7 years that it has been operating beyond its capacity.

Mr. SALGADO. Senator, I think there is a point here, that it is uncertain whether it is operating beyond its capacity or not. It is that uncertainty that we are trying to ascertain.

We may have found that we were well within the envelope and the margin of safety. The issue is that we were uncertain as to that data base upon which certain assumptions were made, and that is why it was brought down to 50 percent power and that is why we are addressing that issue.

Senator GLENN. You are on the side of production. I will tell you what I am afraid of. I am afraid that one of these days we will have one that we do not catch in time and we will wind up with a public hue and cry to shut down our whole production system, and we will be in deep, deep trouble. And I am trying to prevent that.

Senator EXON. Mr. Salgado, I have some questions along the same lines as Senator Glenn, to try to clarify what DOE's position is. If you have not covered this in your statement, I would ask you to make it now.

I want to ask you some questions as to how the safety record of DOE compares to the private sector. But I will save asking that question now, because you might be covering it in the testimony, and I recognize you for that purpose.

Mr. SALGADO. I appreciate that, Mr. Chairman. For the record, I would also indicate that I have a series of charts here dealing with DOE and private sector fatality rates and other indications that I would like attached and incorporated in the record, please.

Senator EXON. Without objection, it is so ordered.

Mr. SALGADO. Thank you.

[The prepared statement of Mr. Salgado follows:]

## STATEMENT OF JOSEPH F. SALGADO
## UNDER SECRETARY, DEPARTMENT OF ENERGY

Mr. Chairman, I appreciate the opportunity to testify before your Subcommittee on the Department of Energy's views on S. 1085 and our recommendations concerning safety oversight of the Department's national defense activities. Accompanying me today are Troy Wade, Acting Assistant Secretary for Defense Programs, and Del Bunch, Deputy Assistant Secretary for Environment, Safety, and Health.

The ultimate resolution of this issue is a matter of deep interest and concern, not only for this Subcommittee and the Department, but for the Nation. There is much at stake in the manner in which outside oversight is implemented. Obviously, the Department has a fundamental responsibility to assure the protection of the environment, public health, and safety. At the same time, the Department has a critical national security mission to perform. It is imperative that we meet our obligations to safety and health without impairing the Department's ability to meet its national security responsibilities. We believe this can be done, however, through a process which allows for practical, realistic, and cost-effective oversight; and I commend this Subcommittee for focusing on this need.

Although we have serious reservations regarding S. 1085, it is Secretary Herrington's and the Department's view that the concepts and objectives presented in this legislation and other related bills can help facilitate the dialogue between Congress and the Administration on the form outside oversight should take. While we have a difference of opinion over the mechanism for oversight, we continue to believe that the Department and the public stand to benefit from the establishment of an independent advisory body to oversee the safety of these nuclear facilities. Secretary Herrington has endorsed the creation of such a body and has stated so publicly on several occasions. The Secretary's position is consistent with the Administration's efforts to continue to strengthen the Department's capabilities and credibility in the safe operation of our nuclear facilities.

## THE IMPORTANCE OF DOE DEFENSE PRODUCTION ACTIVITIES

I would like to take a moment to underscore the importance, the complexity, and the uniqueness of our defense production facilities. The Department's nuclear weapons complex is an integrated research, development, and production complex of laboratories, manufacturing plants, and test sites located in 11 states and employing approximately 60,000 contractor personnel and 3,000 Federal personnel. To replace this national resource would cost nearly $50 billion. It is a unique national asset, the only resource in the United States for the development, testing, manufacture, and transportation of nuclear weapons. The value of the nuclear weapons program derives from the excellence and vitality in the national laboratories and the unique production facilities, including the reactors. The Department has on schedule successfully produced generations of nuclear weapons with increased capabilities and improved safety features for the Nation's stockpile. This success has occurred while striving to meet increasingly higher standards of nuclear facility safety, worker safety, and environmental protection at our production facilities. We must preserve the strengths and capabilities of this asset.

The production reactors are designed and operated to produce nuclear weapon grade materials. These are not power reactors designed or operated primarily to generate steam. The majority of the reactors have been in continuous use since the mid 1950's. Until recently, the level of availability for DOE reactors as compared to commercial plants has been very good.

The manufacturing facilities producing the hardware, electronics, components, and the casing for the weapons also date from the 1940's and 1950's. For example, the newest production plant is the Pinellas Plant in Florida, built in the late 1950's.

Effective integration of the research laboratories and the manufacturing facilities contributes to the development of technologies essential to the nuclear weapons program. Maintaining a vigorous nuclear weapons technology base obviously will remain important for the foreseeable future. Therefore, the Department regards action to protect the environment, provide a safe workplace, and protect the public health and safety as both essential to and compatible with the need to assure the long-term availability and reliability of materials needed for the weapons stockpile.

## SECRETARY'S ES&H INITIATIVES

The fact that we agree with the need for outside oversight has been misconstrued by some to mean either that we're currently exempt from outside regulation or that we aren't meeting our obligations and responsibilities for worker and public health and safety. Although no outside oversight in the form contemplated in S. 1085 currently exists, we have an ambitious, active environmental, safety, and health program in place; and we are currently accountable to existing environmental regulations and safety standards.

Secretary Herrington came to the Department with a determination to address what he recognized as a long deferred issue: increased emphasis on the Department's environment, safety, and health performance. One of his first actions was to review the effectiveness of the Department's Environment, Safety, and Health (ES&H) organization. In September 1985, he announced a series of initiatives to strengthen the independent ES&H oversight program. The first step was to elevate ES&H responsibilities under an Assistant

Secretary. Second, programs were strengthened and focused to develop a baseline consisting of the environment and safety data throughout the research and production complex, and to review and revise all the Department Orders on nuclear safety, quality assurance, and industrial hygiene.

In December 1986, the Secretary directed the Assistant Secretary for Environment, Safety, and Health to formulate recommendations for oversight of nuclear safety. In May 1987, the Secretary announced support for the concept of outside oversight as an additional independent source of advice to him on the operation of the Department's nuclear facilities. As the record demonstrates, the Department has anticipated the issue and has moved to address the matter in a timely manner. We have been working with Congress to develop an oversight mechanism that will balance the responsibility of providing the Nation's nuclear deterrent capabilities with the need to operate our facilities safely and protect the public health and safety.

Some reviews conducted by DOE's own safety inspectors and by the National Academy of Sciences have identified a number of safety improvements that should be made. DOE is working aggressively to implement these recommended improvements. For example, the NAS identified a need to increase our assurance that the emergency core cooling systems at the Savannah River Plant's reactors would work as intended. In response to this, DOE has reduced operating power limits to a more conservative level until the issue can be resolved. This demonstrates that we are ready to take quick action when increased assurance is needed regarding the safety of our nuclear operations.

## ENVIRONMENTAL STANDARDS AND WORKER SAFETY

DOE must comply with all applicable environmental statutes and regulations regarding emissions to air and groundwater, waste handling, and storage and cleanup of abandoned or unused storage sites. We have compliance agreements in several areas with the Environmental Protection Agency and with involved States at a significant number of our sites.

The record shows that we maintain industrial occupational safety standards that significantly exceed the performance of the private sector. Lost-time accident rates are less than one-third of the national average. Lost workday rates have averaged less than half the National Safety Council industry average rates. Radiation exposures at our facilities in general are one-tenth the levels that existed in 1974. Current practices compare favorably to those at commercial nuclear facilities. Over the last ten years, less than one percent of all workers exposed to radiation at DOE facilities received more than 2 rems, one third the rate at commercial facilities.

Trying to meet today's standards for worker safety with aging operating facilities presents a large challenge, but an objective look at the record shows that this challenge is being met by the Department. We also note that the Department of Labor has testified against those provisions of S. 1085 which would transfer worker safety provisions to the Labor Department.

## FACILITY SAFETY

In the area of facility safety, Secretary Herrington has stated repeatedly that our operating facilities must perform at an acceptance level of safety. In fact, safety is an integral and inextricable part of our nuclear operations. The Department has testified this year that we will not allow a known unsafe facility to operate. Unfortunately, although upgrades and safety improvements have been and continue to be made, there is a tendency to judge the safety of an existing facility using standards which would be applied to a new construction project.

Our older facilities have difficulty in literally complying with criteria that would be applied to a new facility. Nonetheless, we have made every effort to uphold the integrity of our operations under the demand of these standards. For example, the Department has a program in place at certain facilities to evaluate systematically all departures from contemporary requirements. This program will provide a baseline to make decisions regarding the need for further improvements. Such actions are necessary and yet at the same time need to be structured in ways that do not fundamentally impair the national security mission of the Department. The funding constraints which all of Government currently faces, coupled with recent complications due to the aging condition of some facilities, have resulted in a weapons production complex that no longer operates with the redundant capabilities we once possessed.

## DOE VIEWS ON OVERSIGHT

It is vitally important that the Congress consider these perspectives and the record fully in its contemplation of outside oversight of the Department's defense facilities. The bottom line is that major improvements are being made to the Department's safety and environmental program. Important issues remain; and we are continuing to develop strategies to address these issues, including fundamental institutional changes and the implementation of outside oversight. We firmly believe that these strategies must be developed with great caution, attention to, and concern for the impact on national security as well as worker and public health and safety.

In addition, the Department believes that whatever oversight proposals are adopted should build on Secretary Herrington's initiatives and the gains the Department has achieved since 1985. These include a strong commitment for safety on the part of line management, coupled with a strong independent oversight by DOE's Environment, Safety, and Health organization. Care must be taken to ensure that these gains and the programs in progress are not sacrificed in the name of outside oversight.

DOE believes that prudent, thoughtful, independent oversight can be an important part of our responsibility to assure safety of operations. Ideally, through independent oversight, we can assure ourselves and the public that our operations and facilities are reviewed from the most objective and up-to-date technical vantage points. In the Department's opinion, it is imperative that in order to be effective, independent oversight must include the following elements:

o A clear mandate to help ensure that DOE facilities comply fully with applicable standards for nuclear safety.

o Recognition that the Department's unique safety and national defense responsibilities require that the Secretary be the final authority with respect to the operation of these facilities.

o Provision of a forum for frank and open discussion of safety issues, including opportunities for public involvement, without allowing our national security goals to be developed by those intending to influence policy on nuclear weapons through delay.

o Independent oversight must avoid vesting regulatory power in an outside entity not qualified to evaluate the effect of its decisions upon the national defense requirements.

o Avoidance of a new regulatory bureaucracy which duplicates existing nuclear safety oversight functions within the Department and other agencies.

The purposes identified in S. 1085 address some of these concepts. It is our view, however, that this legislation would not achieve them effectively and could hamper severely the Department's ability to perform its national security and energy research missions. Further, we believe that a number of other objectives of S. 1085, regarding OSHA authority, NIOSH access, and independent review of DOE's radiation epidemiology research programs, can be satisfied either with a Memorandum of Understanding or are addressed already in oversight mechanisms.

The issue very simply is not the purpose or objective of S. 1085, but rather its execution. S. 1085 would establish in broad terms the parameters of an effective outside oversight system. It narrowly defines the mechanisms to implement the system. In an attempt to assure independence, S. 1085 proposes what is effectively a new and unnecessary regulatory bureaucracy. To assure the accountability of the Secretary to the Board's recommendations, S. 1085 proposes a resolution process, which is unprecedented. The President would be required to arbitrate technical disagreements between the Board and the Secretary. The Board would be empowered to define, on its own, the level of risk appropriate for the Department's national security operations. Those findings would be imposed on the Secretary despite the absence of clear standards for the NSB to use in its evaluation.

The process proposed is not realistic, practical, or efficient and has the potential to hamstring the Nation's ability to maintain an adequate nuclear deterrent.

What is needed is a balanced approach to meet the outside oversight: the

Board's independence, the Department's accountability, a practical process, and the achievement of our national security mission. These objectives do not, and should not, conflict. In addition, we believe that any oversight proposal should build on the Department's strengthened internal oversight program while providing an opportunity for the expert advice and external perspective that already have served us well in identifying needed improvements in our nuclear safety program.

In this context, the following discussion addresses more specifically what we see as the flaws in S. 1085 and identifies possible alternative approaches to accomplishing the stated aims of this bill.

## EFFECTIVE ACCOMPLISHMENT OF DOE'S NATIONAL SECURITY MISSION WILL BE IMPAIRED

The Secretary of Energy has the authority and responsibility to balance national security imperatives with safety program needs. His role is a unique one: apart from the President, he alone has the knowledge and management responsibilities that permit a structured evaluation of national defense requirements as they apply to the nuclear weapons program. Although S. 1085 provides for a Presidential exemption for national security, this mechanism is contained in current environmental statutes and has rarely been used. In this case, it would be neither practical nor effective to assure that the necessary balancing takes place in an orderly manner. S. 1085 would effectively transfer the Secretary's responsibility for accomplishing the Department's national security mission to the Board. Without any true flexibility for responding to the Board's recommendations and without any control over the technical safety basis of these recommendations, neither the Secretary nor the President would be able to exercise the executive responsibility over the nuclear weapons program with which they are charged.

For these weapons, the responsibility of ensuring the mutual achievement of both our national security and safety program objectives must continue to reside with the Secretary.

## AN UNNECESSARY AND COSTLY REGULATORY BUREAUCRACY WOULD BE CREATED

In an effort to construct airtight accountability, S. 1085 creates a process that is regulatory in nature and which would, by its design, be adversarial with access to intervenors through private citizen suits. Despite provisions to the contrary, the regulatory process outlined in S. 1085 would require considerable staff and monetary resources to sustain the administrative, legal, and technical review processes that go with it. It is not clear if the original intent of S. 1085 envisioned the Nuclear Safety Board to be regulators or advisors. Proposing oversight boards to regulate the regulators of nuclear safety is not a new idea. The role of oversight was discussed in great detail following the accident at Three Mile Island. At that time, Graham Allison, Dean of the Harvard School of Government, was asked to review the need for a permanent oversight board to review the activities of NRC and industry. He found that, "What the nuclear regulatory process needs least in this world is another layer or oversight, counter-balancing and review." In other words, safety is not necessarily enhanced by duplicating regulatory functions. Conversely, an oversight board with an advisory function, if given a legislative basis and sufficient scope, can serve to complement and strengthen the operational safety.

## THE NUCLEAR SAFETY BOARD PROCESS IS NOT WORKABLE

Although DOE's accountability to the Board must be a fact of any outside oversight option, S. 1085 also proposes a complex process by which the

Secretary's response to a Board "recommendation" is limited to several preordained answers. Unless the Secretary fully agrees with the Board's recommendations, he or she has four options for not acting upon them: technical feasibility, economic infeasibility (based on cost-benefit considerations), lack of funds, or impact to national security. In all four cases, a negative Secretarial response automatically entails arbitration or intervention by the President to resolve the issue. To grasp the practical implications of this, the nature of nuclear safety must be considered. Few recommendations in this area will receive unanimous support. Almost every issue before the Nuclear Safety Board will require the application of technical judgment and assessment of risk. Differences of opinion are inevitable. The mandated use of Presidential authority to resolve these disagreements is inappropriate and unwarranted. The President has neither sufficient time nor sufficient staff resources to evaluate the technical merits, the costs and benefits, or the national security implication of every difference between the NSB and the DOE. Such a process at its best would add another layer of technical reviewers, while at its worst, it could lead to the institutional equivalent of "gridlock" in the oversight process while issues await Presidential action. These kinds of issues are more appropriate and efficiently resolved by the Secretary of Energy.

## KEY ELEMENTS FOR OVERSIGHT

There are a number of alternative means available to satisfy the purposes of outside oversight of the Department's nuclear facilities. Some of these are reflected in pending legislation in both the Senate and the House. The following represents key elements that should be considered in accomplishing the objectives of oversight while striking the necessary balance among national security, practicality, and other considerations.

- A Nuclear Safety Board should be required to use clearly defined safety goals in developing its recommendations. Although cost-benefit studies have merit, they can only be useful when the benefits are clearly understood. The NRC and nuclear power industry have recognized the need to address safety benefits as steps taken to achieve an established safety goal for nuclear power operations. Without a "safety goal" or similar operating benchmark, S. 1085, for example, could lead to endless backfitting requirements on DOE facilities that could cost the Treasury billions of dollars without a corresponding guarantee that safety has been proportionally improved.

- The Department must be given more authority to consider the cost-effectiveness of any recommended changes that would go beyond essential standards for safety. Judgments on minimization of risk is a much different issue than avoiding "undue risk" as mandated by the Atomic Energy Act. The Secretary is in a position to evaluate risk minimalization and strike a balance with mission requirements. The NRC's safety goal policy and revised backfit policy are designed to assure that risk minimization and facility modifications are handled in a deliberate manner in conjunction with the industry. This should also be the case with the Department's operations.

- Accountability can be assured through clearer standards of performance and a process that invites public input and informs Congress of planned actions. Advice is needed from experts who can offer a fresh perspective on the safety standards and practices used at DOE's facilities. The process should emphasize the substance of the advice to be given, not administrative or adjudicatory prescriptions. Accountability can be served best by full disclosure of the actions both of the Board and of the Department to Congress and the public, where Government oversight properly belongs.

## CONCLUSION

The issues that we have discussed today, in the past, and will no doubt continue to address in the future, can be summed up in one word -- credibility. The reason we are here today is our shared desire to establish outside oversight to help restore the credibility necessary to best accomplish our unique national security and energy research missions. Care must be exercised in providing prescriptions in this area. National security is too important to introduce what can only be considered an experiment in government process, no matter how well intended.

I believe we have shown our commitment over the past two years to change the way the Department performs safety oversight and the way in which it addresses needed improvement to our aging defense complex. Outside oversight should build on this strengthened program and continue the interchange with outside safety experts that the Secretary and I have found to be so effective. These and others like them have experienced firsthand the strengths and weaknesses of a regulatory process and believe that the safety of DOE's nuclear facilities can be best enhanced through a technical safety advisory process.

The development of a balanced, lasting oversight function will require a recognition and understanding of these gains, a broad perspective of what is to be accomplished, and a willingness to pursue a dialogue between Congress and the Administration on how best to accomplish what increasingly seem to be consistent goals. Let me assure you, for our part, that we stand ready to work with this Committee and Congress to reach resolution of this issue. It remains a matter of the highest priority to the Secretary, to me, and to the Department.

[The charts referred to are retained in committee files.]

Mr. SALGADO. For the record, I would also indicate that sitting with me at the table is Mr. Troy Wade, the Acting Assistant Secretary for Defense Programs on my left; and Mr. Del Bunch, the Deputy Assistant Secretary for Safety, Health and Quality Assurance to my right.

I will make a very brief introductory statement. I want to commend Senator Glenn. We have met several times and we have reasonable differences. The purposes and objectives underlying S. 1085 are a correct philosophy. S. 1085 has the correct objective and the correct goal.

We at the Department have strong reservations about the form, the process, and the implementation of how we obtain those goals and objectives. Secretary Herrington and the Department of Energy firmly believe that the responsibility to carry out the national security mission carries with it an obligation to ensure both worker and public health and safety.

We do not deny that. The Department and the Secretary believe that an independent advisory board to oversee the nuclear facilities of the Department of Energy is in the best interest of the Department and is in the best interest of the country.

But we also believe that it is imperative that the oversight body be advisory and not regulatory, if we are to meet and balance national security needs with environmental and health and safety needs.

We have an important complex here as we discussed earlier. It is unique and it is tightly interrelated. What happens in one operation or part of the complex can have dire impacts on the rest of the complex. It is integrated, it is fragile, and it is old.

It is an aging complex. It is not up to modern standards. We are operating in 11 States and have 63,000 employees.

Between these facilities is a network of transportation systems that cross the majority of States of this country.

Our mission is the development, testing, manufacture, and transportation of nuclear weapons and materials. That, sir, is a success story. It is a success story. This complex has met the security needs of this country for 30 years, and it has been successful.

On the other hand, our performance on the environmental, health and safety aspects, while meeting those needs on the nuclear side, has been dismal. We agree with Senator Glenn, it is not a success story.

I see it more as nonfeasance and misfeasance, rather than malfeasance. Technology and knowledge, laws, and the age of these facilities have overtaken the entire complex. Practices of the past have left a monumental legacy of environmental problems.

The remedy, the remedial actions for these problems, are in the billions of dollars. Probably the most important legacy that the past has brought to the Department of Energy today, is a lack of credibility, a lack of credibility in the manner in which we operate our facilities, a lack of credibility here on the Hill as we discuss these issues with you gentlemen, and a lack of credibility across the Nation.

It is something that we in the Department must rectify. We believe in the last 2 to 2½ years that we as a Department have acted responsibly and aggressively to cure those ills and to turn away and turn around the way the practice has been in the past.

I want to recount a little bit, because I think it is important, if in fact we need to strike a balance someplace between independent oversight through advisers and independent oversight through a regulatory body.

When Secretary Herrington came to the Department, he recognized that a new focus on environment, health, and safety was long overdue. We established a new Assistant Secretary for Environment, Safety, and Health. We centralized that activity within this Department.

ES&H was sent out to develop baselines on our environmental problems so that we could take a corporate look and approach these from the long term. ES&H was sent out to review our safety standard and to revise and review all of our Departmental orders.

It was not just words. I think Senator Glenn and the rest of you who have followed this will agree.

Essentially, the budget for ES&H in those 2 years (1986–1987) had increased 71 percent; the manpower that we put into our ES&H activity increased 65 percent; and the overall budget in the Department, during times of fiscal constraint, had increased 23 percent in environment, safety, and health activities.

In Colorado, we brought the State, EPA and the Department of Energy together to sign a compliance agreement, to try to address in a logical, reasonable form the environmental problems surrounding Rocky Flats.

We have moved aggressively in other States and other localities, to establish our credibility and our commitment to move forward, to bring our facilities into environmental compliance.

In light of Chernobyl, there was a need at that particular time for the Department to seek outside help. We turned to the Roddis panel, six consultants, and brought them in to advise the Secretary on the N Reactor and its problems.

At the same time, we felt it was imperative that we bring in the National Academy of Sciences to look at all of our production facilities, to help us, as a Department, find and seek remedies to existing problems at our production capability.

The N Reactor was brought to a stand down status to do safety improvements. Many concerns have been raised by individuals in both the legislative branch and the executive branch about the emergency core cooling system problems at Savannah River.

That was brought to the attention of the Secretary by the Department, itself, which resulted in a power reduction of 26 percent in December 1986. While the Academy was doing the task that we had asked it to do, to help us look at our facilities, they also raised the issue and said that they were not sure that the 26 percent reduction was sufficient to ensure safety margins.

Within 48 hours of our staff being briefed by the National Academy of Sciences, by Richard Meserve, we brought together our headquarters staff and field staff and determined that it was in the best interest of the Department to further reduce those reactors to a 50 percent power level.

We have sought outside advice. This Secretary has sought it and we have listened to it. We have taken and heeded that advice when we deemed it was important for both the national security and the credibility of the Department in carrying out its mission.

Our lost time accident record within the Department of Energy's complex, which is an aging complex and which is diverse and geographically diversified, is less than one-third the national average.

Our lost work day rates throughout the entire aging, diversified complex is less than one-half of the industry average.

After careful consideration in May 1987, Secretary Herrington took an historical step for the Department of Energy. He endorsed the need for an independent advisory body to advise him. We endorsed that concept because we thought it was important that we have the ability that outside expertise and knowledge would bring in.

At the same time, we realized the fragile nature of our aging complex, and nuclear deterrence demands, were competing elements that have to be balanced—with the environmental and safety concerns.

They have to be balanced financially. They have to be balanced in a priority sense, in that certain environmental, safety, and health concerns may take priority over others in the importance of maintaining our national security and defense capabilities.

We have a problem with Senator Glenn's bill. Once again, with the utmost respect, I indicate that the goals and objectives of that bill are consistent with those of Secretary Herrington and the Department of Energy. Our concern is that the bill itself creates a nonworkable situation, an impractical situation that will impede the national security. S. 1085 will not in itself assist and help the Department move forward on safety and environmental concerns that we have recognized, because somewhere there has to be this balancing of these issues.

Without going further into this, I would only indicate that we would welcome your questions and an open and frank dialogue concerning these issues, because I know the time is very late, Mr. Chairman.

Senator EXON. Thank you very much.

Let me recognize the ranking member, Senator Thurmond, for any questions that he may have, and I will follow up later on after the rest of the panel has had a chance to ask their questions.

Senator Thurmond.

Senator THURMOND. Thank you, Mr. Chairman.

Secretary Salgado, is the level of oversight called for in S. 1085, Senator Glenn's bill, necessary?

Mr. SALGADO. I think that the level of oversight——

Senator THURMOND. By that I mean, should it go to the President or should the Secretary of Energy handle it? The President has Cabinet members for that very purpose. In Agriculture, he goes to the Secretary of Agriculture. On Interior matters, he looks to that Secretary. In the Defense Department, he looks to the Secretary of Defense.

Should not the person he looks to be given that responsibility, and should he not hold him responsible? The President does not have the time to look over everything. For instance, if the EPA comes in and says there are safety standards there in inspecting the environment and the Energy Department says no, Energy may have to let the White House decide it, the President decide it.

But ordinarily, is it not appropriate to put the responsibility on the person and hold him responsible for it, because the President does not have the time, if he ever did, to go into these details in every facet of our Government.

Mr. **SALGADO**. Senator, the Department and I agree that the proper place for an advisory board, nonregulatory in nature with public forums and accountability, to the public and to the Hill, is to report to the Secretary of Energy, so that he may balance these concerns and make prudent decisions that are reviewable, on the Hill through the legislative process, and internally within the administration.

Senator **THURMOND**. Is the Energy Department supportive of any form of outside oversight?

Mr. **SALGADO**. Yes. The Energy Department is supportive of it. The Secretary has stated publicly that we believe that an independent board of outside oversight should be established—reporting to the Secretary with full public participation.

Senator **THURMOND**. So do you favor, then, outside oversight?

Mr. **SALGADO**. Yes, sir, we do.

Senator **THURMOND**. And the outside oversight could call the attention of the Secretary to anything they feel has been overlooked or should be done, and then the burden is on him. He is the man responsible for running this thing. Is that the way you look at it?

Mr. **SALGADO**. That is correct, sir.

Senator **THURMOND**. Will outside oversight ensure safe reactor operation within the Department of Energy, do you think?

Mr. **SALGADO**. Sir, I firmly believe that it will. It will for two reasons.

First of all, I think the history of the Department in the last few years has proven that we will be responsive to independent outside oversight and their recommendations. I think, second, the legislative process and the public nature of the process will assure that we will respond expeditiously to those recommendations as we have in the past.

Senator **THURMOND**. Senator Symms handed me a question to ask you. Why not use the NRC to regulate nuclear facilities?

Mr. **SALGADO**. Senator, the problem is that we have aging facilities, some over 30 years of age. The NRC regulates light water commercial reactors that are different. We essentially are not comparable.

You are attempting to mix apples and oranges at this time. We agree that in the future, a new production reactor, if built, or with the modernization of a new complex, I think this approach would benefit the country, because transportation itself is going to be a common denominator in the future, and, one umbrella organization that had the ability to do it would make sense.

But I do not see that in the foreseeable future; the complex itself is aging; it is fragile; and essentially, it does not fall within the nuclear regulatory scheme, their regulations or their standards at this time.

Senator **THURMOND**. But you need the NRC to have oversight over commercial operations, do you not?

**Mr. Salgado.** Yes, sir.

**Senator Thurmond.** Well, this is a little different situation, is it not?

**Mr. Salgado.** Sir, it is my understanding as it currently exists——

**Senator Thurmond.** You are making weapons here for defense.

**Mr. Salgado.** That is correct, sir.

The world of nuclear power is diminishing and the world of people who have the expertise dealing with heavy water reactors, production reactors, is also diminishing. It is my understanding that there is a lack of expertise at the NRC at this particular time to even address an oversight issue, given these production reactors.

**Senator Thurmond.** I think my time is up. Thank you.

Thank you, Mr. Chairman.

**Senator Exon.** Thank you, Mr. Chairman.

Senator Glenn.

**Senator Glenn.** Thank you, Mr. Chairman.

I agree with exactly what Senator Thurmond said a moment ago when he said that the Secretary should decide, and it was words like this: except on the rare occasions when he take it to the President. I believe that was close to what Senator Thurmond said.

That is right on. That is exactly what we are trying to provide for with this bill. On those rare occasions when there cannot be agreement between the safety board and the Secretary to resolve something, then it gets taken to the President. That is all we are trying to provide for, nothing more or less. Then the President can say, for national security reasons we overrule the safety board and we go ahead with production if necessary.

In answer to the other question that was asked on behalf of Senator Symms, why we do not use the NRC to oversee the Department of Energy, there is one very good answer to that, and that is that we would shut down our whole production process from one end to the other.

Now, I grant Mr. Salgado's statement that it is a different type of operation, has different problems, is not amenable to the same type analysis that ACRS gives to the NRC. But if we apply the standards that NRC has for radiation hazards, handling of equipment, handling of material within the plants, and so on, if we applied those same standards to the DOE operation, I would submit that we would shut down most of the DOE operation. I do not think most people disagree with that.

Now, you make take exception to that. I do not know. Do you?

**Mr. Salgado.** To both premises, I do, and I would like to respond, given an opportunity.

**Senator Glenn.** Go ahead.

**Mr. Salgado.** I think on the first issue we agree, we all agree the Secretary needs to make a decision——

**Senator Thurmond.** Please speak louder.

**Mr. Salgado.** I am sorry.

We agree that the Secretary needs to make a decision. The problem is that there is a foregone conclusion under S. 1085 that if the Secretary disagrees with this board's subjective interpretation of safety, without a set of rules and criteria, that that would immediately go to the President for resolution.

**Senator GLENN.** That is not true in every case. It would be only on those cases where they feel it is important enough that it has to go to the President. It would not be on every single little case and it would not be on something where the President had to devote part of every day to this, as Senator Thurmond was afraid of. I would be afraid of that, too.

This would be on the rare occasions, as he said, where the President should decide, and that is what this bill provides.

**Mr. SALGADO.** But again, that leaves that subject of determining the degree of safety, the margin of safety, to a board of advisors, independent as they are. That does not leave it to the Secretary of Energy to make the decision. If the Secretary disagrees, he then has to report this to the President, and the President either overrules him or can agree with him, and then provide certification to Congress within 60 days.

**Senator GLENN.** Let me just add a couple of other things here. The safety of the N Reactor was questioned as far back as 1966 in two letters I have here from Glenn Seaborg to the Advisory Committee on Reactor Safeguards.

It went all these years without some of those concerns being taken care of. I also want to add that DOE did not share with the National Academy of Sciences information it had about the concerns on the power levels at Savannah River, for instance. They had to dig that out. They heard some of it later from some of the employees talking about it down there.

DOE did not inform them when they were down there on that. At the time when the power level was reduced to 26 percent later on, I do not think they were even informed about that. Now, this is not taking into consideration all of these safety concerns, certainly.

We can go back to Fernald. There was a bag house there that was supposed to seine out the uranium dust coming out. It was left unattended, it had breaks in it, and it went on for 3 months spewing out the uranium dust over the community.

We could just go into dozens of examples like this where safety took second place to production. I grant you that DOE is now tuned in on this and is doing much more than it has in the past, but it is just not enough.

I do not see why you do not welcome outside oversight, and in areas where they feel so strongly about it. Let the President make the decision as to what is in the national interest. That is all the bill does.

**Mr. SALGADO.** May I respond, Senator, as we have this dialogue?

**Senator GLENN.** Yes.

**Mr. SALGADO.** It would be easy to say yes, give it to an independent board, let them go forward with it, let them make the recommendation to go forward. Why should we concern ourselves with the dollar amounts? Why should we concern ourselves with the national security, because now we have a scapegoat, we have this independent board?

I firmly believe, sir, that it is not in the best interest of the country. I firmly believe it is not in the best interest of the Department of Energy, because the board, as currently constituted, has a major subjective analysis.

They may look at a whole separate safety issue that may not be as germane or as important to the Secretary's determination. But by their finding and by their determination of its importance, they may move this finding to the front. The flexibility to manage a Department, the ability to basically counterbalance the needs of the Department on an ongoing basis, the ability to establish long-term goals and objectives, whether in the environment arena or the safety arena, are going to be impaired because the dialogue between this board and the Secretary of Energy is nonexistent as it is currently structured.

I would submit, sir, that the board does not make recommendations. It gives directives to the Secretary of Energy, and in essence it gives directives to the President of the United States.

In my opinion, what is created by S. 1085—and again, we agree with the premises—what is really created is an independent, Cabinet-level board. In essence, the moment that the board disagrees with the Secretary, they can take the dispute to the President of the United States and force some type of resolution on some technical and safety issues.

I do not think that is a way to do business. Now, I would agree with you, sir, that history and our legacy is insufficient for you to trust us to address safety problems.

But at the same time, sir, I think that if you reflect on the last 2 years; if in fact we create an advisory board to the Secretary, and if that board were to report back to Congress, to this committee in a 2-year period of time, after doing a complete analysis as to the best manner to balance these concerns, to study this, and then say, we agree that the Department of Energy is callous, it disregards, and does not follow good safety and environmental procedures, I could not stand before you, sir, and argue with you.

Senator GLENN. My time is up, so we are going to have to stop my questions here.

But Mr. Chairman, I have here a list I would be glad to enter into the record of 21 GAO reports on the DOE production system, going clear back to 1979. I have requested many of these. A lot of them have been requested by me and by other Members of Congress, of the Senate. These reports outline DOE's unwillingness to do certain things.

[The list referred to follows:]

Nuclear Waste: "Unresolved Issues Concerning Hanford's Waste Management Practices" (GAO/RCED 87-30; Nov. 1986).

Nuclear Energy: "Environmental Issues at DOE's Nuclear Defense Facilities" (GAO/RCED 86-192; Sept. 1986).

Nuclear Safety: "Comparison of DOE's Hanford N-Reactor With the Chernobyl Reactor" (GAO/RCED 86-213BR; Aug. 1986).

Nuclear Waste: "Impact of Savannah River Plant's Radioactive Waste Management Practices" (GAO/RCED 86-143; July 1986).

Nuclear Energy: "A Compendium of Relevent GAO Products on Regulation, Health, and Safety" (GAO/RCED 86-132; June 1986).

Nuclear Safety: "Safety Analysis Reviews for DOE's Defense Facilities Can be Improved" (GAO/RCED 86-175; June 1986).

Environment, Safety, and Health: "Status of Department of Energy's Implementation of 1985 Initiatives" (GAO/RCED 86-68FS; Mar. 1986).

Nuclear Waste: "Department of Energy's Transuranic Waste Disposal Plan Needs Revision" (GAO/RCED 86-90; Mar. 1986).

Environment, Safety, and Health: "Environment and Workers Could Be Better Protected at Ohio Defense Plants" (GAO/RCED 86-61; Dec. 1985).

Environment, Safety and Health: "Information on Three Ohio Defense Facilities" (GAO/RCED 86-51FS; Nov. 1985).

"DOE's Plutonium Facility" (GAO/RCED 85-3; Sept. 1985).

"Department of Energy Acting To Control Hazardous Waste At Its Savannah River Nuclear Facilities" (GAO/RCED 85-23; Nov. 1984).

"DOE's Safety and Health Oversight Program At Nuclear Facilities Could be Strengthened" (GAO/RCED 84-50; Nov. 1983).

"Decommissioning Retired Nuclear Reactors At Hanford Reservation" (GAO/RCED 83-104; Apr. 1983).

"Cleaning Up Nuclear Facilities—An Aggressive and Unified Federal Program Is Needed" (GAO/EMD 82-40; May 1982).

GAO's Response to DOE on EMD-81-108, "Better Oversight Needed for Safety and Health Activities at DOE's Nuclear Facilities" (EMD 82-36; Jan. 1982).

"Congress Should Increase Financial Protection to the Public From Accidents at DOE Nuclear Operations" (EMD 81-111; Sept. 1981).

"Better Oversight Needed For Safety and Health Activities At DOE's Nuclear Facilities" (EMD 81-108; Aug. 1981).

"GAO's Analysis of Alleged Health and Safety Violations At The Navy's Power Training Unit At Windsor, Connecticut" (EMD 81-19; Nov. 1980).

"Department of Energy's Safety and Health Program For Enrichment Plant Workers Is Not Adequately Implemented" (EMD 80-78; July 1980).

"Decommissioning Hanford Reactor" (EMD 79-20; Jan. 1979).

Senator **Glenn**. DOE was not concerned about health and safety. I grant you they are now, they are tuned into it now, but these 21 reports indicate an abysmal record. That is the reason why we do not think that the production people are the ones to make their own health and safety judgments because the track record in the past has been abysmal.

We get agreement on that. In our private conversations, I think you and I have agreed on that, and you say you are doing something about it now. I do not doubt that you are doing something about it.

I have seen some of the results of that. But I would think you would welcome somebody who would offer a second opinion that the Secretary can take action on. Or in case they disagree, it goes to the President and the President says, these health and safety concerns are not big enough, and he says in the national security interest we have to have the production over whatever the health concerns are.

That would occur on rare occasions only. It is not something that is going to be a daily occurrence. We agree on everything else. But whether it goes from the Secretary to the President, I hope we can bridge that gap and that you can be convinced of the right and just way to go.

Senator **Exon**. Senator Wirth.

Senator **Wirth**. Thank you very much, Mr. Chairman.

John, I think you and I have kept the GAO busy with those problems and those at Rocky Flats as well.

Mr. Secretary, I appreciate the attention that Secretary Herrington has brought to this issue, that Mary Walker has brought, and that Mr. Bunch and his crew have brought. And I do not think there is any question about the fact that you have raised this set of issues.

We have a systemic problem which Senator Glenn is concerned about, which I am concerned about. Just for the record, let me say, Mr. Chairman, that Mr. Salgado is correct that DOE, EPA, and the Colorado Department of Health successfully did negotiate an agreement governing the cleanup of mixed wastes at Rocky Flats, which gave CDH broader oversight responsibility.

I do not remember whether you all were there or other people were previously there. But DOE in the early stages of that agreement was strongly opposed to the Department of Health having this kind of oversight, even though EPA, the outside group, was in the process of giving that to the CDH.

It was only when this got into the press and that there became very deep public concern about the possibility of mixed wastes flowing into the water supply that it escalated to the point that DOE shifted its position and sat down and negotiated the agreement.

The problem is this. You all have a lot of other things to think about, the primary one of which is the production of tritium and plutonium and the production of weapons. It seems to me the history is that you get yourself inexorably into a reactive mode, and that is the nature of this part of DOE.

If I had my druthers, I would move out of DOE altogether, the health and environmental responsibilities. I have had legislation in the past do that. But that is not where we are.

So we have different points of view on this. I just wanted to make a record on exactly what did happen, Mr. Chairman, on the Department of Health agreement, which is a very good one and a model that I will be following elsewhere, there is no question about it.

But it took us a long while to get there. It is the kind of model we ought to be using elsewhere.

Anyway, to go to another issue that I wanted to touch upon, you have described the complex, Mr. Salgado, as an aging complex. It does not meet modern standards. It brings us a monumental legacy of environmental problems.

I gather that you are looking at this, is that not right, Mr. Wade? Do you not have a long term study of the whole complex?

Mr. WADE. Yes, sir.

Senator WIRTH. When is that report going to come in?

Mr. WADE. Well, Senator Wirth, we have only just completed part of it. We have looked only at the production side of the complex. We have to take a similar look at the research side.

Senator WIRTH. When is that all going to be done?

Mr. WADE. Hopefully, some time next year. We will clearly not have a final report, because there are many, many options.

Senator WIRTH. Do you have a pretty good sense now as to what the costs of this to the year 2010 are going to be to the taxpayers?

Mr. WADE. No, sir. But as you perceive it, it is very, very expensive. It is tens of billions of dollars.

Senator WIRTH. How many tens of billions? The figure that has been used in the last 10 days or so to create the umbrella organization or the new organization that Mr. Salgado is referring to and to try to figure out how to clean up the old one is that we are talking somewhere in the neighborhood of $100 billion?

Is that an accurate figure?

Mr. WADE. It is certainly not inaccurate, Senator. It depends on what you include in that number. Do you talk about new facilities? Do you include the decontamination and decommissioning of the old facilities?

Senator WIRTH. I mean that is all part of the tab, right? We are going to have to build a new complex, is that not right? We are going to have to build a new complex.

We cannot limp along with what we have now. We are going to have nuclear weapons for some time to come, and we are going to have to be making the tritium and modernizing weapons. That is going to happen for a long time. We need a new complex and we have to clean up the old complex and do the best we can to clean up the old complex.

That is a $100 billion tab, is that not right?

Mr. WADE. That is as good as any number, Senator.

Senator WIRTH. Do you think the American taxpayer understands that we are into this?

There is a stark reality to this which I find astounding. It is just huge, $100 billion, and we are not even making anything. We are just building the buildings to make things in, is that not right?

Mr. WADE. That is correct.

Senator WIRTH. Where is this money going to come from? Is that DOD's budget? Is that your budget? Is that something that we are going to have to do, Mr. Chairman, $100 billion?

Mr. SALGADO. If I could respond to that. I think essentially our weapons complex plans fall in the 050 account, the same account that DOD is in. We know there is only so much water in the well, and basically as we look forward to the future I think there are going to have to be clear tradeoffs that will have to be made.

That of course is a legislative prerogative and you will have to address it.

Senator WIRTH. My time is expired. I will simply close by saying that I think we almost do not have any choice, that we have to move ahead right away on the new complex.

Senator Glenn is correct, the more likely event is something happening within this complex that is going to cause a very significant public reaction, and then there are going to be pickets outside of each one of these plants and enormous public reaction to the health and safety issues. And people will say, shut it all down.

Then we will get into a very, very unfortunate confrontation between the Government and the public, in which these facilities are located. So my instinct is the faster we get on to building the umbrella organization you were talking about, Mr. Salgado, the better off we are going to be, even though I understand we are embarking on a $100 billion program.

Thank you, Mr. Chairman.

Senator EXON. Thank you, Senator Wirth.

Mr. Salgado, there is some debate behind the scenes right now as to where the needed new production facility or facilities should be. In this Senator's view, the quicker we move the better off we are going to be. I think you would agree with that, do you not?

Mr. SALGADO. I would agree that it is of utmost importance that we address the issue of new production reactors as soon as possible.

Senator EXON. I believe that the Department is now working on some kind of report to us as to where the new facility should be built. Is that correct?

Mr. Salgado. That is correct. We are attempting to respond by the February 1 date as to an indication of the site selection process and preferred sites.

Senator Exon. Do you have any advance information that you could share with us on that report at this time?

Mr. Salgado. The only information that I have that I could share with the chairman, and would gladly share, is this. There is a parallel track taking place within the Department as we look at the need and the demand for a new production reactor.

On the one hand, we have to look at the technologies involved. Basically, the technology that is selected is most advantageous to meet the national security concerns. I think it is essentially agreed that there are four basic technologies that should be reviewed.

The Secretary within a week or two will be making a decision on the process to look at the technologies on the one side.

On the other side, we will start an internal process to review preferred site selections, so that we have an analysis done as to the benefits, the qualitative benefits of the various sites around the country that could, if we decided to go forward, would be amenable for a new production reactor.

So that internally, Mr. Chairman, we are looking at two processes to deal with these two open issues, to bring them to some type of closure before the Secretary.

Senator Exon. I take it that you feel that the budget constraints would eliminate the reasonable possibility of building two plants simultaneously?

Mr. Salgado. I feel that the budget constraints are going to have a dramatic impact upon the complex as you saw it. I think that the possibility or the desire to build two plants simultaneously may not be in the best interests of the country, that there is a possibility that a staggered construction period hypothetically would be determined by the executive branch or the legislative branch.

And depending upon the technology that is chosen for the first, there may be advantageous R&D activity that could take place, so that essentially you may utilize a different technology in the second.

So in the wish world of things, I think one NPR could go forward and R&D and a timely commencement of the second NPR may be advantageous.

Senator Exon. But I think the point you are making is you do not want to move too quickly on R&D on that second unit until you build the first one.

Are you faced with a political problem in making that decision or are you facing the national security needs of the United States as your primary consideration?

Mr. Salgado. Our primary consideration and recommendation, both to the Secretary and in the executive branch, are the national security concerns. There is not a political problem. There may be budgetary problems, but there is not a political problem dealing with the recommendation to go forward with an NPR.

Our only issue now is to look at the technology that is available to ensure that the technology that is available is in the best interests of the country, with a long term goal of maintaining a reasonable and assured supply of tritium into the 21st century.

Senator EXON. Well, frankly, I must tell you, Mr. Secretary, that when that report comes down here in February it had better be realistic. It had better be recognizing the fact that the bleak picture that you painted for us today here indicates that we had better get cracking on some new facilities.

I am just saying to you as a member of this committee and as a member of the Budget Committee that I cannot conceive that we should be talking about selecting two sites at this juncture. I think you should move speedily ahead, as a matter of suggestion, on one site.

Get moving on one site as quickly as we can, and when I say quickly, I mean how much money are we going to put behind it, and then go ahead with the procedures that you outlined to look for a second facility.

But I would think we would want to have a pretty slow break, slowing things down a little bit on that second facility, because I think you have made a very good point in your testimony here today, that while we are building this one facility we would want to wait for a final design on our second facility, I suspect, until the first facility is completed, so that any improvements would be incorporated in the second structure.

Is that an unfair suggestion?

Mr. SALGADO. No, it is not unfair.

I would like to clarify something. When we indicated that we would move forward on preferred sites, I think we have to look at all available sites and do a qualitative analysis to the best benefits and the cost-benefits to the Department and the country.

And of course, the selection of technology can have some type of impact on the sites that you are looking at. And so, by inference in saying "sites" I was only referring to the possibility of one NPR that we are looking at, but we have to look at all possible sites.

Senator EXON. I understand that.

Is the safety of DOE facilities comparable to that of the NRC-licensed reactors? What measurement can be used to compare the safety record of the commercial and Government facilities?

Mr. SALGADO. I would ask Mr. Bunch to respond to that, Mr. Chairman.

Senator EXON. Mr. Bunch.

Mr. BUNCH. The Department has about 200 facilities, reactors, reprocessing facilities, fabrication facilities, tritium facilities, some of which are the same type as our licensed facilities. That is, there are fuel fabrication facilities that are licensed by the NRC.

Measures of safety comparability might be, as Mr. Salgado indicated, what do the facts show in terms of accident rates? At this point the worker safety in terms of accident statistics are about three times better in the DOE complex than thay are in licensed facilities. We have a very good worker safety record.

In terms of indicators, such as the rate at which the reactors scram or shut down when they are suppose to, the licensed facilities used to have unplanned scams about 10 times a year. It has gotten better to about seven. The Department's facilities indicate a more reliable operation over time.

In terms of reports of unusual occurrences, events, which might have some safety signficance, the Department's record in terms of those kinds of statistics is running at roughly half the rate of the licensed facilities for comparable types of events.

In terms of the record of radiation exposures, the radiation exposure records for the Department of Energy's complex is far superior in terms of individuals who receive measurable and significant exposures. As I recall, we have not had but one exposure out of 100,000 workers in the last couple of years that was over limit and that was just a bit over limit, and we have roughly a tenth of the workers that were exposed to two rem or more, which is well below the limit.

So I think in terms of safety facts and safety figures we are doing very well indeed.

Senator EXON. Thank you. That was a very comprehensive reply. I would hope that others would hear what you just said and read it if they did not hear it, because I think it points out more than anything else that there may not be a balanced approach to the safety problem that we are all very much concerned about.

Let me press that a little bit further and ask either you, Mr. Bunch, or you, Mr. Salgado, this question. S. 1085 requires risks to be minimized or substantially reduced. Nuclear reactors licensed by the NRC are only required to avoid "undue risk" or to provide "adequate safety."

Should DOE facilities be held to a much stricter standard than commercially licensed facilities in your opinion?

Mr. SALGADO. No, they should not. And part of our concern with this bill is the fact that there are very few standards, articulable standards, against which either the Secretary or the Department is able to gauge performance.

I would ask Mr. Bunch to expand.

Mr. BUNCH. Mr. Chairman, as you were indicating, the Nuclear Regulatory Commission, of which I was a member for some years, has a two-tier standard. They have a set of requirements, as does the Department, that says these are the minimum acceptable requirements. No matter what, you just simply cannot operate a plant unless you do these things. Cost is not an object, it is not a factor.

Once you get past that point where you are talking about improvements, whether they are substantial or minor, the Nuclear Regulatory Commission has adopted a cost-benefit standard that says it is entirely appropriate, once you have shown that you are adequately safe, that there is not an undue risk, that you ought to take cost into account; you ought not to make a change, even if it is a substantial improvement to safety, unless it makes sense economically as well.

The Department's procedures generally are of the same type. We have a set of operating safety requirements or technical specification limits that control and govern the operation of each of our facilities. Those have to be met.

The concern we have had, at least in terms of the construct of S. 1085, is it does not have this two-tiered approach. It requires change so long as people can identify a measurable improvement or an improvement in safety, without regard to cost.

Senator EXON. S. 1085 would cover not only nuclear production reactors, as I understand it, but also the national laboratories, test sites, assembly facilities, transportation and waste storage facilities. Do all of these facilities need the oversight of a Nuclear Safety Board in your opinion?

Are any of them already covered by existing legislation? Have they all experienced difficulty maintaining safe operations, in your opinion?

Mr. SALGADO. Mr. Chairman, just one second.

I will ask Mr. Bunch to respond, because there are some exemptions in the litany of facilities that you have indicated.

Senator EXON. What is exempted?

Mr. BUNCH. As we understand it, the original bill that we were asked to comment on, that was introduced in the spring time, would have the Nuclear Safety Board review nuclear facilities. As I believe that was defined, that would not include facilities operated for and by the nuclear navy group, it would include weapons testing activities, it would not include transportation activities.

The bill as reported out I believe includes weapons transportation and other transportation activities insofar as the Nuclear Safety Board would elect to review incidents or events that took place involving that kind of activity.

Senator EXON. Let me try to tie this down. Do you think that S. 1085, the last version of it that you have seen, covers the national laboratories?

Mr. SALGADO. I believe some of the national laboratories are covered. I would ask, with the chairman's permission, to submit a response for the record.

Senator EXON. I would appreciate your doing this very much, and also test sites, assembly facilities, transportation, and waste storage facilities, along with the other things we have discussed.

Mr. SALGADO. Yes, sir.

[The information follows:]

The definition of facility in S. 1085, as reported by the Governmental Affairs Committee, would encompass all facilities covered by the Atomic Energy Act of 1954, except the naval nuclear propulsion activities defined in the Executive Order 12344. This definition would include nuclear production reactors; test sites; assembly facilities, including the Pantex facility; and most national laboratories. The definition also would cover waste storage facilities under the control or jurisdiction of the Secretary, other than a facility developed under the Nuclear Waste Policy Act of 1982 and licensed by the Nuclear Regulatory Commission. Under a separate section of S. 1085, the Board also could investigate various aspects of the transportation of nuclear materials.

Many of the facilities are regulated pursuant to other regulatory regimes. For example, the waste sites are regulated by the Environmental Protection Agency pursuant to RCRA and CERCLA.

Senator EXON. I think that is a pretty key question as we look at how far we are going in this whole area.

I believe that we have covered all of the areas on which I have questions. We may submit some additional questions for the record, because the record will remain open until Wednesday next at the close of business. We may have some other questions for you.

I would just like to give any of you three gentlemen an opportunity now to make any closing statements or to clear up anything that you thought the committee might not have fully appreciated in your earlier statements. And I would ask you if you have anything to say and add at this time.

Mr. Salgado. Mr. Chairman, no. Our thanks to you and the other members of the committee. We have had some very frank and open discussions here today. We would hope to continue this dialogue.

We see this bill as important. We also have serious reservations about aspects in it that we have already enumerated. And I thank you, sir.

Senator Exon. I take it from the question and answer session that went on here today, Mr. Salgado, that you and your associates have had rather extensive discussions with Senator Glenn on and off about this bill that he introduced?

Mr. Salgado. We have been privileged to have a series of meetings and to testify before his committee, sir.

Senator Exon. I could not tell from the questioning today for certain whether or not there was any means for compromise on this. I would just simply say, after listening to all sides, that we all want to do the same thing, and we argue about whether we are going to take the left road or the right road or the one down the middle.

Was there an effort, a determined effort, a distinct effort on the part of Senator Glenn and his staff and you and your staff to come up with a compromise bill of some type that would eliminate the objections that you and the Department have to the bill and still maintain what I think is the main thrust of Senator Glenn's conviction, which is to try to improve the safety of our plants?

Was this explored in any particular area, or was it one of those situations where they proposed and you disposed and never the twain would meet?

Mr. Salgado. I do not believe that that was the case. I spent an hour or so with the Senator and Mr. Weiss discussing what our concerns were. I do believe that after the hearing part of our staff met with Senator Glenn's staff. There were certain accommodations that were made. There were certain issues that were raised.

There were disagreements. I think our disagreement is on this area of responsibility and who will make the decisions. That is, essentially, the only real major disagreement that exists between us and Senator Glenn.

Senator Exon. Well, it seems to me from listening to this and getting into it in any depth for the first time that the crux of the disagreement is that you want an advisory board and Senator Glenn wants and dictates in his bill more of a regulatory board, not a total regulatory board, but in essence that is what it amounts to, because the President would have to overrule you if the board didn't agree with your decisions.

In simple language, is that the crux of the disagreement?

Mr. Salgado. Yes sir, that is the essence of the disagreement.

Senator Exon. And you have tried to compromise and work that out without success?

Mr. Salgado. I am not quite sure that dialogues took place. There are certain issues upon which reasonable men are differing, and I believe that this is a substantial issue and of great concern to Senator Glenn as well as to us.

[Questions for the hearing record with answers supplied, follow:]

## QUESTIONS SUBMITTED BY SENATOR J. JAMES EXON

Senator **EXON**. Is immediate oversight necessary to avoid a serious accident at DOE nuclear facilities?

Mr. **SALGADO**. While the Department agrees with the need for outside oversight would be a useful compliment to existing oversight programs, it does not believe that the situation warrants precipitous action, but rather it should be a well thought out plan to achieve the maximum benefit for the Department and for the public. The outside oversight Board should be an independent body, advisory to the Secretary.

Senator **EXON**. Does DOE endorse outside oversight of the safety of its nuclear facilities?

Mr. **SALGADO**. Yes, provided it has the essential elements outlined in the testimony of Under Secretary Joseph Salgado of October 27.

Senator **EXON**. Is outside oversight alone enough to ensure the safe operations of DOE facilities?

Mr. **SALGADO**. Oversight is not a substitute for safe operation. At best, it will help to assure that those responsible for safe operation do their job properly.

Senator **EXON**. Only Title I of S. 1085 has been sequentially referred to our committee. There are 3 other titles in S. 1085. Do these titles affect DOE's nuclear facilities? What is DOE's view of their impact?

Mr. **SALGADO**. DOE opposes enactment of titles II, III, and IV of S. 1085. Title II would make OSHA the regulator of DOE worker safety. OSHA, in testimony before the Committee on Governmental Affairs, indicated the reasons why such a provision would not necessarily be in the best interest of worker safety. Title III would provide for EPA regulation of the radioactive constituents in mixed wastes. Title IV of S. 1085 would create, legislatively, another oversight panel that would look at epidemiological studies conducted by the Department of Energy. Such legislation is unnecessary, because peer review already exists and is being carried out effectively.

Senator **EXON**. What would be the budgetary consequences of DOE of implementing all the recommendations made by the Nuclear Safety Board? Does S. 1085 allow DOE to address the tradeoffs between upgrading existing facilities to meet today's standards and building new facilities based on current technologies?

Mr. **SALGADO**. The budgetary consequences for DOE implementing all recommendations made by the Nuclear Safety Board of S. 1085 cannot be precisely defined; however, they would be large. The Board is charged with identifying recommendations which would constitute a significant improvement to safety. This open-ended requirement will lead to substantial backfitting of all of DOE's nuclear facilities even where the operators pose no undue risk to workers or the public. It has been estimated that post-TMI backfits of commercial nuclear power plants are in excess of $100 million each. We anticipate that S. 1085 would lead to required improvements that far exceed those required by the NRC post-TMI, because there are no standards that would guide the Board inherent in the legislation. S. 1085 does not allow DOE to address the tradeoff between upgrading existing facilities to meet today's standards and building new facilities based on current technologies.

Senator **EXON**. Are the recommendations of the Nuclear Safety Board that would be created by S. 1085 advisory to the Secretary of Energy or would he be required by law to implement them? What happens if the Secretary of Energy disagrees with a recommendation of the oversight board? Is his considered judgment given as much credence as that of the oversight board?

Mr. **SALGADO**. Although they are styled as "recommendations," decisions of the Nuclear Safety Board that would be created by S. 1085 are binding on the Secretary of Energy unless he prevails in an appeal to the President. Under S. 1085 even the Secretary's conclusions on technical feasibility, presumably an area of his expertise under the Atomic Energy Act, would not be conclusive unless the President affirmatively decided the same questions in the same way as had the Secretary. In this fashion the procedure crafted by S. 1085 gives the Board's initial judgment more weight than that of the Secretary on such questions, in that the Secretary's judgment may prevail only in the event that he persuades the President.

Senator **EXON**. What assurance does S. 1085 provide that recommendations will be referred to the President only on "rate occasions?"

Mr. **SALGADO**. None. In fact, the construction of S. 1085 suggests that the Secretary will be required to seek Presidential approval on many occasions.

Senator **EXON**. Why is it so important that the Secretary of Energy be the final authority with respect to operation of DOE facilities? What are the consequences of having a safety board mandate changes in current operations?

Mr. Salgado. By law, the Secretary of Energy is responsible for the research, development, testing, production, transportation, and disposal of nuclear weapons. To carry out these functions, which are so vital to the Nation's security, the Secretary manages an extensive complex of facilities throughout the country. In managing the nuclear weapons complex, the Secretary is responsible for meeting production requirements dictated by the President's annual stockpile memorandum, while assuring that the facilities are operated safely. The Secretary's dual responsibility to safety and production places the Secretary in the best position to balance these concerns.

As reported by the Senate Committee on Governmental Affairs, S. 1085 establishes an independent Nuclear Safety Board that would be responsible for regulating the safety of facility operations. The bill requires the Secretary to implement Board "recommendations" with certain narrow exceptions. While fundamental safety standards must be met, S. 1085 diffuses existing responsibilities and skews the delicate balance between national security and safety requirements to the safety side of the equation.

Senator Exon. The recommendations of S. 1085 are mandatory. There are only three limited exemptions. One occurs if the President affirms that the Board's recommendation is technically or economically infeasible. Is it wise to have the President arbitrate disagreements between the Board and the Secretary as to when something is technically or economically infeasible?

Mr. Salgado. It is neither wise nor appropriate to involve the President in the detailed decision making process regarding whether or not a recommendation is technically or economically infeasible. This type of decision appropriately should be made by the Secretary of Energy, who is responsible for managing DOE's programs and activities. The Secretary is unique in having access to all of the technical, economic, budgetary, and other information necessary to make such a decision, and then to apply the results in striking the appropriate balance.

Senator Exon. The recommendations of S. 1085 are mandatory. There are only three limited exemptions. A second one occurs if the funds to implement the recommendations are lacking and the President asks Congress to appropriate such funds. If the President does not request such funds, the facility will be closed. How will DOE pay for the recommendations of the Board?

Mr. Salgado. If the President does not request the funds needed to implement recommendations made by the Board, DOE must, according to S. 1085, shut down facilities. In such a case, we simply would not implement the Board recommendations. As part of the Executive branch, DOE would be bound by the President's decision not to request the funds and would not attempt to circumvent that decision by seeking alternative ways to fund Board recommendations.

Senator Exon. The recommendations of S. 1085 are mandatory. There are only three limited exemptions. A third one occurs if the President is willing to certify that the "security of the Nation will be severely threatened by closing the facility." This exemption also suggests that the President may want to "amend" the stockpile requirements, presumably by stating we can do with fewer nuclear weapons, in order to implement the recommendations of the safety board. What are the consequences of unilaterally reducing our nuclear weapons stockpile requirements?

Mr. Salgado. The management of the nuclear weapons stockpile is the responsibility of the Department of Defense (DOD). The DOE is responsible for the research, development, testing, production, shipment and retirement of nuclear weapons. This question should be referred to DOD for response.

Senator Exon. What are the consequences of having an outside board define the level of risk appropriate for DOE's national security operations?

Mr. Salgado. An outside oversight Board, as currently proposed, would only be responsible for reviewing the safety of DOE nuclear facilities but would not and should not be responsible for balancing any safety risk against national security concerns. This will put the outside oversight Board in the position of making safety recommendations that may be detrimental to or outweighed by national security concerns. This could put the nation's nuclear deterrent capability in jeopardy. The Secretary of Energy is the official with the responsibility and the authority to balance safety recommendations with national security concerns, which is why the oversight Board should be advisory to the Secretary.

Senator Exon. What safety priorities does S. 1085 express? Does it distinguish clearly between catastrophic adverse effects such as an accident like the Chernobyl, and minor adverse effects as an accidental release of toxic substances within a plant's boundaries?

Mr. Salgado. One of the unworkable elements of S. 1085 is its failure to identify clear requirements to guide Board activities; no safety priorities or safety standards are defined. The Board would be empowered to identify any kind of change which in its subjective judgment would constitute an improvement. The bill doesn't distinguish between accidents and risks which pose little or no damage to public and worker health and safety.

Senator EXON. Would adding a layer of regulation of DOE's nuclear facilities improve the safety of their operations?

Mr. SALGADO. No. This is confirmed by the National Academy of Sciences in its report on the production facilities. One of their concerns is that another layer of regulation actually could be detrimental to both production and safety. The Department strongly agrees with this view.

Senator EXON. What safety goals does S. 1085 establish? How will DOE measure the technical fixes it makes against a clearly established benchmark for safe nuclear operations?

Mr. SALGADO. S. 1085 fails to specify either a concrete safety goal or benchmarks for determining safety issues. The Board would be authorized to identify any change that it believes constitutes a significant improvement to safety. The bill doesn't establish any mechanisms for consultations or for modification of recommendations—DOE must defer to the Board's subjective judgment on what it deserves as a "significant" improvement.

Senator EXON. Why should DOE nuclear facilities not be held to a minimum risk standard as suggested by S. 1085? Are commercially licensed reactors held to a minimum risk standard?

Mr. SALGADO. Commercially-licensed reactors are not held to a minimum risk standard. NRC has developed specific standard and licensing requirements which govern operation for commercial activities; NRC has issued a policy statement regarding safety goals and objectives. The NRC does treat its licensing requirements in a two-tier category, which S. 1085 does not. That is, certain requirements are mandatory upon licenses without regard to the cost impacts of such requirements; other requirements which go beyond the minimum determined by the NRC for safety operation are developed based on cost-benefit judgments applied to plants on a "rule of reason" basis. This same approach has-and should continue to be applied to operations at DOE facilities.

Senator EXON. How will the Secretary control the budget of the Department of Energy if the Nuclear Safety Board requires the Secretary to implement its recommendations regardless of budgetary constraints? Does this preempt the Secretary's authority by requiring the reallocation of authorized funds? Please frame your response in light of sections 3126 and 3127 of the fiscal year 1988 Defense Authorization bill.

Mr. SALGADO. If the Nuclear Safety Board requires mandatory implementation of recommendations without prioritizing or ranking the recommendations, the Secretary could be required to implement those recommendations or shut the facilities down. The Secretary would have to seek authority to reallocate funds under the constraint imposed by existing law in order to implement the Board's recommendations. In light of section 3126 of the Defense Authorization bill for fiscal year 1988, if enacted, the Secretary would have the authority to use available funds for planning and design when necessary to protect human life or property or to meet the needs of national security using available funds providing such use was not inconsistent with appropriations acts. Section 3127 further would provide the availability of operating expenses, plant and capitol equipment funds "in connection with all national security programs of the Department of Energy" again provided such was not inconsistent with appropriations acts. These sections of the Defense Authorization bill, if enacted, provide some of the flexibility and independence the Secretary would need to accommodate the reasonable recommendations from the Board. Any mandatory actions required by the Board that the Secretary does not have funding to complete would, under S. 1085, require a shut down of the national security facility or the intervention of the President.

Such a requirement would limit the Secretary's control over the Department's budget by requiring the Secretary to reallocate what would be a large amount of the authorized funds to implement the recommendations of the Board. This requirement also would permit the Board to affect significantly the original priorities that Congress established in its authorization acts.

Senator EXON. A possible recommendation of the Nuclear Safety Board is the installation of containment domes on the production reactors that do not at present have them. Containment domes are a standard feature on all new reactors; however, our older facilities have confinement systems instead. The cost of installing containment domes of existing reactors could range from $2 to $5 billion. The cost of constructing a new production reactor is about the same: $2 to $5 billion. Should

DOE be forced to install containment domes on existing facilities rather than building new, modern, capacity? If no, could facilities meet requirements during construction.

Mr. SALGADO. The Department does not believe that installation of containment domes at any of its production reactors is warranted. The need for new production capacity far outweighs the need for containment domes. The National Academy of Sciences (NAS) found that there was no compelling evidence that the mere adoption of the containment concept would substantially improve the safety of the production reactors. In fact, the NAS concluded that in theory the confinement approach can be an acceptable means for mitigating accidents. The NAS did note several concerns with the existing confinement systems. The Department, prior to the NAS report, had already been upgrading the confinement systems at the production reactors and will address the concerns of the NAS in these upgrade programs.

Senator EXON. Would S. 1085 cover not only nuclear production reactors, but also the national laboratories, test sites, assembly facilities, transportation, and waste storage facilities? Do all these facilities need the oversight of a nuclear safety board? Are any of them already covered by existing legislation? Have they all experienced difficulty maintaining safe operations?

Mr. SALGADO. The definition of facility in S. 1085 will encompass all defense activities defined in section 11 of the Atomic Energy Act, and all facilities covered by the Act with the exception of the nuclear navy activities defined in Executive Order 12344.

Many of the facilities are regulated pursuant to other regulatory regimes. For example, the waste sites are regulated by the Environmental Protection Agency pursuant to RCRA and CERCLA.

Senator EXON. The General Accounting Office has conducted numerous analyses of DOE nuclear operations. Please summarize their findings and indicate how DOE has responded to the GAO's recommendations?

Mr. SALGADO. Attached.

## GAO REPORT

March 1987
T-RCED-87-4
Enviromental, Safety and Health Aspects of the Department of Energy's Nuclear Defense Complex

This report was prepared at the request of Senator Glenn and contains recommendations for action to be taken by DOE. GAO recommended that DOE develop an overall strategic plan which defines the universe of problems DOE faces in rebuilding its nuclear defense complex. GAO stated that such a plan should include:

(1) the projected facility requirements for continued nuclear weapons production;

(2) a comprehensive picture of the environmental, safety, and health issues facing DOE, including the development of a soil and groundwater protection plan;

(3) actions needed to ensure that DOE facilities are operated in a safe manner; and

(4) solutions to resolve these issues along with the associated cost and time frames.

DOE Response

The Department has ongoing planning efforts at the strategic, program and project levels. A strategic level study is ongoing at Defense Programs to examine the options available to configure the nuclear materials and nuclear weapon production facilities in the year 2010. The results of this study, expected to be completed early in FY 1988, will be used by DOE top management to determine the configuration of production facilities required to meet our statutory responsibilities under the Atomic Energy Act to support the Nation's nuclear deterrent posture in a safe and environmentally sound manner. The strategic concept selected by DOE management will provide the frame work for conducting program and project level planning activities.

As part of Secretary Herrington's environment, safety and health (ES&H) initiatives, the Department is in the process of conducting Technical Safety Appraisals and the Environmental Survey at all key facilities and laboratories to identify potential ES&H vulnerabilities and prioritize them for planning corrective actions. The results of the Technical Safety Appraisals and the Environmental Survey, in conjunction with ongoing planning activities, will enable DOE to prepare ES&H long range plans for defense related facilities and laboratories. DOE plans to prepare annual interim ES&H long range plans addressing the nuclear defense complex over the next few years and finalize the ES&H long range plan at the completion of the Technical Safety Appraisals and the Environmental Survey in FY 1989. The ES&H long range plan will be updated annually based on continuing assessments and studies concerning needed corrective actions and negotiations with Federal/State regulatory agencies.

The strategic planning information together with information from the annual ES&H long range plan and nuclear weapon requirements approved by the President on an annual basis will be integrated to prepare program plans. The program plans will be provided to Congress as part of the annual authorization and appropriation process.

DOE is also developing a groundwater and soil protection plan in response to a previous GAO report, Nuclear Energy: Environmental Issues at DOE's Nuclear Defense Facilities (GAO/RCED-86-192, September 1986).

In regard to GAO's recommendation for outside, independent reviews of safety analysis reports (SARs), the Office of Environment, Safety and Health, which is independent of any operating responsibility for DOE's production facilities, reviews the SARs for new high hazard and selected moderate hazard nuclear facilities within the DOE complex. Concurrence on the acceptability of these analyses by EH is required on the construction and start-up authorizations. Also, independent EH reviews are being conducted of select SARs for existing operating nuclear facilities. The Department is not opposed to the use of outside experts when appropriate to supplement the independent Environment, Safety and Health oversight program, as evidenced recently by Secretary Herrington's appointment of a safety panel of outside experts (the so-called Roddis group) to review N Reactor safety and the National Academies of Science and Engineering to review the safety of DOE's Category A reactors. Also, as noted in testimony of the Assistant Secretary for Environment, Safety and Health before the Senate Governmental Affairs Committee on March 12, 1987, we are open to whatever improvements to the Department's system of ES&H oversight would serve to enhance the independence and credibility of such oversight. The ongoing review by the Office of Environment, Safety and Health of policy options for outside oversight includes exploration of the benefits of outside review of SARs.

With respect to outside inspections of the waste handling and disposal practices for DOE defense waste, on May 1, 1987, the Department issued a rule that subjects all such DOE radioactive wastes which also contain chemically hazardous components (also called "mixed wastes") to Environmental Protection Agency and state regulation under the Resource Conservation and Recovery Act, thus providing for joint RCRA/AEA regulation.

The Department believes that we are implementing a well thought out approach and process to define and address the issues facing DOE in rebuilding its nuclear defense complex.

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## GAO REPORT

March 1987
RCED-87-73FS

Nuclear Health and Safety: DOE's Progress in Implementing Its 1985 Initiatives.

This Fact Sheet was prepared at the request of Senator Glenn and represents GAO's evaluation of our progress as of December 1986 in implementing the Secretary's initiatives. You should be aware that GAO defines the initiatives somewhat differently than we do. GAO believes the September 1985 press material contains 7 initiatives:

1. reorganizing the ES&H activities at DOE headquarters
2. revising ES&H orders
3. conducting a major environmental survey of conditions at DOE sites
4. carrying out major technical safety appraisals of conditions at DOE's nuclear facilities
5. revising ES&H information reporting and tracking systems
6. increasing environmental guidance
7. enhancing the professional development of ES&H staff

Status:

GAO found that as of December 1986 DOE has made progress in implementing all but one of the above "initiatives".

- The reorganization is essentially complete.
- DOE has revised six ES&H orders governing the conduct of DOE operations
- Field work for the Survey has been completed at eight facilities with interim reports scheduled to be available in early 1987.
- Safety technical appraisals have been completed for 10 DOE facilities.
- An ES&H information reporting and tracking system is operational.
- DOE has issued a number of specific environmental memorandum to field offices governing various environmental aspects of DOE operations.
- In regard to enhancing ES&H professional development, DOE has not yet developed a plan setting forth specific ES&H training needs. ES&H efforts to enhance professional competencies have centered on hiring additional staff with specialized ES&H skills and experience to fill the organization's vacancies.

## GAO Report

**July 1986** **Nuclear Waste: Impact of Savannah River Plant's Radioactive Waste Management Practices**
RCED-86-143

**Senator Hollings requested that GAO review the radioactive waste management practices at the DOE's Savannah River Plant to determine if these practices have adverse environmental impacts.**

Findings:

GAO found that:

- **Radioactivity contained in the environment outside the SRP boundary was well within applicable standards.**

- o Within the plant boundary, some of the surface streams contained elevated levels of radioactivity, and the soil and groundwater at several waste storage and disposal sites were highly contaminated with radioactivity.
- o SRP has taken several actions and has other actions underway to reduce radioactive releases into the environment.
- o GAO recognized that SRP is preparing an EIS to evaluate the impact of its waste management practices on groundwater quality and to assess remedial actions that may be needed.

Recommendations:

GAO made no recommendations but did note that the waste storage and disposal sites may require long-term institutional control.

## GAO Report

June 1986 — Nuclear Energy: A Compendium of Relevant GAO Products on Regulation, Health, and Safety
RCED-86-132

As a result of the Chernobyl accident, there has been heightened interest in environment, safety and health issues pertaining to nuclear power. GAO received numerous requests for audits/evaluations. The subject report was prepared to give Congress a compendium of GAO's past work in the nuclear area.

## GAO REPORT

March 1986: — Environment, Safety and Health: Status of Department of Energy's Implementation of 1985 Initiatives.
RCED-86-68FS

Senator Glenn requested that GAO monitor the Department of Energy's overall effectiveness in implementing the Secretary's ES&H initiatives, and to provide periodic briefings to his staff. GAO provided a briefing to Glenn's staff on February 10, 1986, and the subject "fact sheet" report in March 1986.

GAO found that as of February 26, 1986, DOE has:

- o completed the reorganization of the Headquarters function;
- o revised but not yet issued six safety orders;
- o developed preliminary plans outlining the scope, methodology, and tentative schedules for the Environmental Survey and the Technical Safety Appraisals;

- started field work on the TSA's, but not the Survey; and,
- DOE is in the early stages of implementing other aspects of the initiatives identified by GAO as revising ES&H information reporting and tracking systems, increasing environmental guidance, and enhancing the professional development of ES&H staff.

GAO did not make any recommendations; it did commit to continue to monitor our implementation progress.

## GAO REPORT

November 1986: Nuclear Waste: Unresolved Issues Concerning Hanford's Waste Management Practices.
RCED-87-30

Senator Glenn requested that GAO review the DOE's management and disposal of defense waste at its Hanford, Washington, facility and determine how the Department complies with the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) in conducting these activities.

The GAO review identified several environmental issues related to compliance with RCRA, CERCLA, and the Atomic Energy Act (AEA).

GAO found that:

- Hanford has been slow to implement both waste management statutes; it has not identified all units under RCRA nor has it identified all potential CERCLA sites that may require corrective action.
- Hanford disposes of liquid low-level waste directly to the soil including byproduct waste that is exempt from RCRA and other waste that is not exempt.
- Hanford does not meet RCRA's groundwater monitoring requirements at four hazardous or mixed waste units; other units also may not comply.

### GAO Recommendation

"... the Secretary of Energy require Hanford to report to EPA and Washington State

- all sites and units previously and currently used to treat, store, and dispose of waste, including those considered to be byproduct and those contaminated by unplanned releases and
- the regulatory authority (RCRA, CERCLA, or the Atomic Energy Act) that controls the management, disposal, and/or corrective actions required for each site and unit identified."

### DOE Comments

The Department concurs with this recommendation and will employ our best effort to implement it in cooperation with the Environmental Protection Agency Region X and State of Washington.

In fact, efforts to provide the information identified in the recommendation are already underway. More specifically, on September 15 and October 1, 1986, the Richland Operations Office submitted two documents identifying all known solid and liquid waste land disposal sites in response to an information request from EPA Region X conducted pursuant to Section 3007 of the Resource Conservation and Recovery Act (RCRA). In addition, on September 18, 1986, EPA Region X submitted a request pursuant to Section 3004(u) of RCRA to Richland Operations Office for a comprehensive list of active and inactive waste management units, including those that handle or have handled byproduct waste. The DOE is preparing the comprehensive listing of waste management units and will identify the regulatory authority (RCRA, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or Atomic Energy Act) that is being applied to the management of each unit. At a meeting with EPA and the State in November 1986, concerning this report, Richland Operations Office agreed to provide EPA and the State with periodic draft copies of the information gathered in order to obtain their input prior to finalizing the report. The report containing the comprehensive listing of waste management units is expected to be provided to EPA in approximately 6 months (summer 1987).

## GAO REPORT

September 1986: Nuclear Energy: Environmental Issues at DOE's Nuclear Defense Facilities.
RCED-86-192

Senator Glenn requested that GAO identify key environmental issues at DOE defense facilities and evaluate the status of DOE's efforts to strengthen its environmental, safety, and health oversight programs. GAO focused its review on nine diverse DOE defense facilities located at seven sites within the jurisdictions of four DOE Operation Offices. THe GAO review identified several environmental issues relating to groundwater and soil contamination, and environmental compliance with the Clean Water Act and the Resource Conservation and Recovery Act (RCRA).

RECOMMENDATION 1. DOE establish a groundwater and soil protection strategy. Such a strategy should reflect DOE policy on the extent groundwater and soil can become contaminated and include specific guidelines, to the extent practical, to protect groundwater and soil around DOE facilities.

Action Planned. Concur.

Current Status of Action. A groundwater and soil protection strategy is under development.

RECOMMENDATION 2. DOE provide to the Congress a comprehensive report setting forth DOE's plans, milestones, and cost estimates for bringing DOE defense facilities into compliance with all applicable environmental laws.

Action Planned. Concur.

Current Status of Action. The DOE Environmental Survey, presently underway, will provide this information. It is scheduled for completion in FY 1989.

RECOMMENDATION 3. DOE provide for independent inspections of DOE operations in regard to the treatment and disposal of any mixed waste that may be exempt from RCRA regulation.

Action Planned. Policy review of byproduct rulemaking underway.

Current Status of Action. Policy review of byproduct rulemaking underway.

RECOMMENDATION 4. DOE revise DOE Order 5480.2 governing hazardous and mixed waste to reflect how waste operations will be managed in the future.

Actin Planned. Concur.

Current Status of Action. Order 5480.2 will be revised. The schedule depends on the outcome of the policy review of the byproduct rulemaking (see Recommendation 3).

## GAO REPORT

June 1986: Nuclear Safety: Safety Analysis Reviews for
RCED-86-175 DOE's Defense Facilities Can Be Improved.

Senator Glenn requested that GAO review the adequacy of DOE's safety analysis reviews for its existing nuclear defense facilities. GAO examined the adequacy of SARs for eight nuclear defense facilities.

GAO found that:

- Safety Analysis Reviews (SARs) have been drafted but not approved by DOE for three of eight facilities even though those three were designated high hazard facilities; 1/
- The extent to which the facilities were compared against DOE's safety design criteria in the SARs varied considerably between the facilities GAO reviewed, some of which provided no comparison; and
- Different approaches and assumptions were used in the SARs to identify and analyze potential accidents at DOE facilities, some of which were more comprehensive than others.

RECOMMENDATION 1. Complete and approve SARs for all high hazard facilities in a timely fashion.

Action Planned. Concur. DOE committed to have all SARs for existing high hazard facilities reviewed and approved by the end of FY 1987. The Office of Nuclear Safety (ONS) is to identify and track for timeliness in completion of the SARs for existing DOE high hazard facilities of which the SARs have not been approved.

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1/ High hazard facilities are those designated by DOE to have potential for significant onsite or offsite releases of radioactive material in a major accident.

Current Status of Action. ONS has identified all operating high hazard facilities that do not have approved SARs and are tracking their status. The following is a list of the current target dates for their corresponding review/approval:

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| 1. | Plutonium Fabrications, Rocky Flats, CO | July 1987 |
| 2. | Plutonium Recovery, Rocky Flats, CO | July 1987 |
| 3. | Plutonium Manufacturing, Rocky Flats, CO | July 1987 |
| 4. | Reprocessing, Savannah River, SC | June 1987 |
| 5. | Fuel Fabrications, Savannah River, SC | May 1987 |
| 6. | Plutonium Processing, Savannah River, SC | July 1987 |
| 7. | Receiving Basin for Offsite Fuel, Savannah River, SC | September 1987 |
| 8. | Tritium Facilities, Savannah River, SC | February 1987 |

RECOMMENDATION 2. Require that SARs include a detailed comparison of the plant against current DOE design criteria, highlighting and explaining any deviations.

Action Planned. Concur. DOE committed to requiring that such evaluations be incorporated into the SARs either through revisions of appropriate sections of the SAR or as an appendix. For existing SARs, this evaluation would be added to the SAR at the time of the next normal update. DOE plans to incorporate this requirement into the DOE Orders.

Current Status of Action. Page changes to Order DOE 5481.1B, "Safety Analysis and Review System," to incorporate the above recommendations into that Order have been drafted and will be submitted to MA shortly for review and approval.

RECOMMENDATION 3. Develop more consistent requirements to be followed in preparing SARs, outlining appropriate methodologies and assumptions to be used in analyzing accidents and their consequences.

Action Planned. Concur. With regard to consistency in approaches used in accident analysis, two actions are being taken: first, updated and improved DOE Headquarters guidance will be provided; and second, ONS will review select SARs of DOE nuclear facilities.

Current Status of Action. Additional guidance is being provided by ONS through (1) "Guide to Radiological Accident Considerations for Siting and Design of DOE Nonreactor Nuclear Facilities," dated January 1986, and (2) the recently updated "Nonreactor Nuclear Facilities Standards and Criteria Guide," dated September 1986. ONS is in the process of updating the Nuclear Air Cleaning Handbook and of developing more detailed guidance for analyzing natural phenomena hazards. These should be completed in 1987. Also, additional guidance for SARs and their review are being planned. ONS has been and will continue to review SARs for DOE nuclear activities.

## GAO REPORT

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| **December 1985:**<br>RCED-86-61 | Environment, Safety and Health: Environment and Workers Could Be Better Protected at Ohio Defense Plants. |
| **November 1985:**<br>RCED-86-51FS | Environment, Safety and Health: Information On Three Ohio Defense Facilities. |

As a result of radioactive air releases between September and December 1984 from Fernald, Senator Glenn requested that GAO examine DOE's program to protect the environment and worker safety and health at the three Ohio facilities. GAO examined data on radioactive and nonradioactive environmental releases and worker exposures, reviewed numerous studies that reported problems at each plant, and identified factors that may have contributed to the problems found. GAO produced the above two reports in response to this request, and made 2 recommendations for corrective action.

RECOMMENDATION 1. The Secretary of Energy should require that radiological monitoring guides be mandatory for all DOE facilities.

Action Planned. Concur. DOE will review and update the existing guides, determine those provisions that can be adopted as mndatory requirements, and those that are more appropriate to retain as guidance.

Current Status of Action. DOE has completed the comment draft and is coordinating the development of the final draft of the basic radiation protection order and specific monitoring requirements guidance with the program elements of DOE. The Department anticipates the completion of the final draft in the third quarter of FY 1987 and completion of the formal adoption process early in the fourth quarter of FY 1987.

RECOMMENDATION 2. A coordinated DOE/State/Contractor system should be developed to verify independently contractor reported environmental monitoring data.

Action Planned. Concur. Recommendation is being implemented.

Current Status of Action: DOE's General Environmental Order is being revised to include Departmental policy on environmental management programs on field office levels. These programs will incorporate independent verification systems. The Department anticipates completion of the formal adoption process for this order by the end of FY 1987.

## GAO Report

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| November 1984<br>RCED-85-23 | Department of Energy Acting to Control Hazardous Wastes at Its Savannah River Nuclear Facilities |

Senator Hollings requested that GAO evaluate the Department of Energy's efforts to control and cleanup groundwater contaimination from hazardous wastes at DOE's Savannah River Plant.

Findings:

GA found that:

o While wastes discarded in that part of the plant known as the M-Area (the fuel fabrication plant) have contaminated groundwater in the immediate vicinity, to date they have had no impact outside of the Savannah River Plant boundaries.

- DOE and DuPont have taken actions to cleanup the M-Area.
- Since 1981, DOE and DuPont have acted to identify and monitor other sites at the Savannah River Plant where wastes were disposed of, and have prepared an environmental action plan that prioritizes work needed to prevent further environmental damage.
- DOE has also established formal agreements to improve coordination with EPA and South Carolina officials in dealing with hazardous waste disposal.

Recommendation:

GAO made no recommendations.

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### GAO Report

November 1983
RCED-84-50

DOE's Safety and Health Oversight Program at Nuclear Facilities Could Be Strengthened

This report was prepared to address GAO's evaluation of the adequacy of DOE's safety and health programs.

Findings:

GAO found that:

- DOE's program continues to be inadequate.
- DOE has not addressed the cause of its problems - i.e., the inherent conflict that exists when contractors who operate DOE's nuclear facilities are responsible for ensuring that safety, health and environmental standards are met and for meeting production or program objectives.

Recommendations:

GAO reiterated its recommendation contained in previous reports:

- DOE's safety and health program should undergo a major reorganization to provide it with the authority and independence necessary for an effective safety and health program at its facilities.

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### GAO Report

May 1982
EMD-82-40

Cleaning Up Nuclear Facilities -- An Aggressive and Unified Federal Program is Needed

This report discusses Federal efforts and activities directed at cleaning up nuclear facilities and sites once they are no longer needed. The review was made as part of GAO's continuing effort to identify issues in the nuclear area which will provide increased public health and safety through better Federal program administration. Four federal agencies were discussed -- DOE, DOD, NRC and EPA.

Findings:

GAO found that:

- The Federal Government needs to take a more unified and aggressive approach to cleaning up and decommissioning nuclear facilities if the U.S. intends to effectively meet current and future decommissioning challenges.
- The limitations of current Federal agency decommissioning programs make it difficult to locate facilities in need of decommissioning costs not only for licensees but also for the public and the Federal Government.

Recommendation:

GAO recommended that:

- The Federal Government establish a national decommissioning strategy and designate a lead agency responsible for monitoring implementation of that strategy.

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## GAO Report

April 1982
EMD-82-36

**Better Oversight Needed for Safety and Health Activities at DOE's Nuclear Facilities.**

This report supplements the August 1981 report (same title) and is GAO's response to and evaluation of DOE's comments on the August 1981 report.

Findings:

GAO found that:

- Overall, DOE disagreed with most aspects of the August 1981 report stating that GAO failed to understand DOE's basic safety philosophy, failed to adequately emphasize DOE's safety record, and strongly disagreed with the GAO suggestion that Congress authorize NRC to assist DOE in conducting safety reviews of its facilities.
- DOE's comments did not directly address many of the major issues covered in the August 1981 report and thus provided no basis for GAO to change any of its positions or recommendations.
- DOE gave no indication that it would further consider any of the GAO recommendations.

Recommendations:

GAO recommended that DOE reconsider its position and take action to improve its safety and health program.

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GAO Report

September 1981
EMD-81-111

Congress Should Increase Financial Protection to the Public From Accidents At DOE Nuclear Operatins

In the event of a nuclear accident at a Department of Energy (DOE) facility, liability protection for public injury would be covered by the Price-Anderson Act. The act establishes the sources and amount of funds to cover public injury and provides a basis for relatively speedy compensation. The act also limits the amount of funds that are readily available from compensation.

GAO believes that since it is the Nation's policy to foster the continued development of nuclear power, the protection provided DOE contractors by the Price-Anderson Act is needed, especially since alternative methods for insuring the public against the potential hazards of a catastrophic nuclear accident do not provide as much financial protection as does the Price-Anderson Act.

In GAO's opinion, public protection under the Price-Anderson Act should be increased for DOE contractor operations. Certain provisions in the Price-Anderson Act and its implementation (1) serve to provide less public financial protection from accidents occurring at DOE contractor-operated facilities than at licensed commercial facilities and (2) may not adequately protect the public from the financial consequences of a catastrophic nuclear accident. Finally, the act does not clearly establish whether evacuation costs in all cases would be covered.

Recommendation:

GAO recommended that Congress correct these problems.

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GAO Report

August 1981
EMD-81-108

Better Oversight Needed for Safety and Health Activities at DOE's Nuclear Facilities

Representative Patricia Schroeder requested that GAO determine if the Nuclear Regulatory Commission or some other form of regulation would be preferable to the DOE oversight program in existence (in 1981) for safety and health matters at DOE's nuclear facilities.

Findings:

GAO found:

o DOE's program to assure that employees at DOE's nuclear facilities are provided with safe and healthful working conditions is inadequate.

- DOE is not providing adequate emergency preparedness guidance and is not taking adequate steps to assure that DOE facilities are prepared to respond to nuclear accidents.
- DOE actions to assure that its older facilities meet current safety and health criteria and standards are very limited.
- DOE does little to assure itself that information concerning radiological releases from DOE's nuclear facilities is accurate and reliable.

Recommendations:

- GAO recommended a major reorganization of DOE's safety and health program to correct what GAO felt were underlying organizational problems - a lack of headquarters authority and the decentralized nature of the program.
- GAO recommended that the field/headquarters relationship be changed to have field safety and health staff report directly to the headquarters safety and health organization.
- GAO recommended that DOE take steps to correct deficiencies in technical reviews of Safety Analysis Reports. Noting that DOE staff lacked the technical expertise, GAO suggested that DOE consider a cooperative agreement with the NRC, and that Congress consider legislation to require NRC to review and evaluate a number and variety of DOE's nuclear facilities and processes; including detailed review of plant operations, the contractor's safety analysis methodology and report, and actions taken to mitigate hazards.

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## GAO Report

November 1980
EMD-81-19

### GAO's Analysis Of Alleged Health And Safety Violations At The Navy's Nuclear Power Training Unit At Windsor, Connecticut

At the request of the Chairmen, Subcommittees on Environment, Energy and Natural Resources, and Legislation and National Security, House Committee on Government Operations, GAO investigated 17 allegations of radiation and industrial health and safety violations at the Windsor facility. The allegations referred to specific events considered symptomatic of potentially dangerous conditions.

In 5 of the 17 allegations, procedures or safety standards were violated, including one case with the potential for a serious personnel injury. None of the five violations involved radiation exposure to personnel, and all were investigated by Windsor facility officials at the time they occurred. In GAO's opinion, none of the events forming the bases for the 17 allegations, including the 5 cases in which violations occurred, were indicative of basic health- and safety-related weaknesses in the facility's operations.

Recommendation:

GAO made no recommendations to DOE.

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GAO REPORT

July 1980: DOE's Safety and Health Program for Enrichment Plant Workers is Not Adequtely Implemented
EMD-80-78

Senator Glenn requested that GAO evaluate the Department of Energy's program for ensuring the safety and health of workers at the Department's three uranium enrichment plants. GAO focused on three areas: the adequacy of the Department's appraisals of contractor health and safety programs, inspections of plant conditions, and investigation of employee complaints.

GAO found that although DOE has designed a comprehensive program to ensure the health and safety of employees at the three government-owned, contractor-operated uranium enrichment plants, its Oak Ridge Operations Office has not effectively implemented the program.

DOE provided comments on the GAO report in October 1980 in response to recommendations contained in the report. In January 1981, in response to a letter from Senator Glenn, the Department wrote to Senator Glenn advising of actions the Department had taken to comply with the recommendations contained in the GAO report.

GAO Recommendation 1

The Secretary of Energy should take action to ensure that inspections and appraisals are performed as DOE procedures require, and that all employee complaints from these facilities be investigated and followed-up on by DOE's Oak Ridge Operations Office.

DOE Response

DOE informed Senator Glenn in 1981 that Oak Ridge had assigned additional personnel to its Safety and Health Control Division, established safety offices at each of the enrichment plant sites, and strengthened existing procedures.

GAO Recommendation 2

The Secretary of Energy should take action to provide increased independence and objectivity in the Oak Ridge Operations Office safety and health program.

DOE Response

DOE informed Senator Glenn in 1981 that ORO had established the position of Assistant Manager for Safety and Environment reporting directly to the Manager. The Assistant Manager for Safety and Environment is responsible for all health, safety and environmental programs for the Oak Ridge Operations Office and has no responsibility for production goals and objectives, or any plant operations.

GAO Recommendation 3

Congress should authorize the Secretary of Energy to institute a program of non-reimbursable fines and penalties for safety and health violations.

DOE Response

DOE informed Senator Glenn in 1981 that, based on over 30 years of experience, DOE believed that the system of contractual safety and health clauses provides adequate assurance that DOE contractors will comply with all applicable standards required by DOE directives. DOE further stated that it believed that the use of award fees provides a greater incentive for good performance on the part of a contractor than is provided by the threat of fines for safety violations.

Senator EXON. The report on S. 1085, in explaining why the Governmental Affairs Committee believes this legislation is required, claims that the reason we have not had oversight of the weapons complex heretofore is because of a concern for secrecy. First, is it true that there has been no oversight in the past, and second, is the absence of oversight explained by any need for secrecy?

Mr. SALGADO. No, it is not true that there has been no oversight in the past. DOE is very conscious of the responsibility to protect classified information, processes, materials and devices, however, our concern for safety has always been paramount.

Independent external oversight of specific activities and facilities of the weapons complex have been requested by the Secretary on several occasions. For example, the Roddis Panel, and the National Academies of Science and Engineering have reviewed the safety of DOE reactors. Internal oversight has been regularly conducted by the Office of the Assistant Secretary for Environment, Safety and Health. An example of independent oversight within the Department has been the conduct of technical safety appraisals at all the DOE nuclear facilities.

In the weapons complex, safety study groups are appointed by the Field Office Managers to assure safety. The effectiveness of this oversight activity is demonstrated in the outstanding safety record of over 40 years duration. These study groups are staffed with recognized experts in the relevant scientific, engineering, social and medical fields. Qualified individuals with proper security clearances are available and serve on these studies, however, the technical background required to permit an individual to effectively evaluate the activities and performance of the nuclear weapons program is not shared by an extensive number individuals.

To summarize, the nuclear weapons program has had oversight of safety activities and has been able to protect information of national security importance.

Senator EXON. In your testimony you described the uniqueness of the nuclear weapons complex and its singular and vital role in the nation's defense. Furthermore, the nuclear weapons complex is much larger than the non-defense complex in terms of budget, employees, and other like yardsticks. Also, it seems clear that the preponderance of safety concerns would lie with the production complex. Finally, the reason given for the need to create an oversight board is the concern that defense production is outweighing the commitment to safety.

In light of these factors, would you agree that Defense Programs is the proper focus of oversight legislation?

Mr. SALGADO. The activities that pose the largest potential risks, in terms of potentially severe accidents, are those at the large production reactors. The preponderance of safety concerns lie with the production reactors and less so with other activities within the Department of Energy; this is due to the age of the reactors, the fact that, unlike other facilities, their upgrading has not kept pace with commercial facilities, and as noted above, with the level of relative risk posed by this type of reactor.

Senator EXON. If legislation were restricted to Defense Programs, but DOE felt the need or advantages warranted coverage of its non-defense facilities, is it not possible to accomplish that extension with an MOU? Does not DOE already rely on that procedure to secure the services of the ACRS?

Mr. SALGADO. In light of the facts stated in question No. 23 and the response noted above, the primary need for oversight would be those associated with the defense production reactors. DOE presently has MOUs with the National Transportation Safety Board, with the NRC, and other agencies. Access to the Advisory Committee on Reactor Safeguards or to the NRC staff is available through an MOU. Should legislation be restricted to Defense Programs, the existing MOUs with the NRC could be expanded, or a new MOU could be developed covering a nuclear safety board and arranging for special reviews by that group.

Senator EXON. Title I of S. 1085 includes waste sites in the facilities to be covered by the Board. Also, the definition of "events" which trigger the Board's investigations would cover releases from both active and inactive waste storage sites. Finally, proponents of S. 1085 repeatedly cite such releases or the potential for such releases in support of the view that DOE has a safety problem.

Is it not true that there is already a comprehensive regulatory regime in place today for environmental matters in both DOD and DOE?

Mr. SALGADO. Yes. A comprehensive regulatory regime is in place today. DOE and DOD facilities are subject to numerous Federal environmental laws, including RCRA, TOSCA, Superfund, NEPA, Clean Air, Clean Water, and the Safe Drinking Water Act. All DOE environmental releases, with the exception of discharges of low level radioactively contaminated effluents, are subject to Federal and/or state regulation. For the discharge of low level radioactivity contaminated effluent, DOE operations must comply with internal DOE standards which have been derived from recommendations issued by national and international radiation protection standard setting bodies.

As a part of the overall internal management directives system, a series of specific directives or orders has been established for environmental requirements at DOE operations. Specific subjects addressed by individual orders have included general environmental protection, monitoring and reporting requirements standards, radiation protection for the public and the environment, hazardous waste management, clean up of inactive waste sites (CERCLA) and requirements or implementation of the National Environmental Policy Act. As part of the Secretary's initiatives to improve environmental programs a number of these orders are now undergoing revision. When these revisions are completed and officially issued in FY 1988, DOE will have in place individual orders for the following subjects:

General Environmental Protection;
Radiation Protection for the Public and the Environment;
Coordination of Environmental Compliance Issues;
Radioactive Mixed Waste Management;
Comprehensive Environmental Response, Compensation and Liability Act; and
National Environmental Policy Act.

Senator EXON. Is it not the case that DOE is already required to clean up all of its more serious waste sites under the superfund legislation regulated by the EPA?

Mr. SALGADO. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), DOE is required to clean up its more serious sites (i.e., National Priorities List (NPL) sites) as determined by EPA. SARA section 120 requires DOE to accomplish preliminary assessments at all of its facilities listed on the Federal Agency Hazardous Waste Compliance Docket by April 17, 1988. Once DOE completes the preliminary assessments, EPA is required to evaluate those facilities for inclusion on the NPL. DOE is required to start remedial investigation/feasibility studies (RI/FS) within six months of EPA listing its facilities on the NPL. At the completion of the RI/FS, EPA and DOE are required to enter into an Interagency Agreement (IAG) to implement the selected remedial action. Once the IAG is signed, DOE has fifteen months to initiate continuous physical onsight remedial action. All of these requirements are contained in Section 120 of SARA. All of the statutory deadlines and the provisions of any IAG are enforceable through citizen suits.

Senator EXON. (a) Under the RCRA Legislation, must not DOE have permits for on-going operations just to continue to run it's facilities?

(b) Isn't it true that RCRA permits can be made contingent on agreements to clean up any existing waste site?

(c) Isn't this program regulated by EPA as well as the States?

Mr. SALGADO. (a) If a DOE facility has operations involving the treatment, storage, or disposal or hazardous waste, a RCRA permit must be obtained.

(b) Included in the Hazardous and Solid Waste Amendments of 1984 were provisions, RCRA 3004(u), dealing with continuing releases at permitted facilities. These provisions require corrective action for all releases of hazardous waste from any solid waste management unit at a facility seeking a RCRA treatment, storage, or disposal permit. RCRA permits are required to contain schedules of compliance for such corrective action. Therefore, RCRA permits can be made contingent on agreements to clean up any existing waste site.

(c) RCRA was designed to have the regulatory program administered by states with oversight from EPA. States, however, have only interim authorization until they develop a program substantially equivalent to the Federal program. Until a state receives final authorization, EPA does retain regulatory authority over RCRA.

Senator EXON. (a) Is it appropriate for a safety board to inject itself into these environmental issues?

(b) Are the technical issues at all similar?

(c) Would much additional expertise have to be resident in the board beyond that necessary to address production safety?

(d) Would an environmental restoration mission dilute the focus of the board?

Mr. SALGADO. (a) The vast majority of the environmental issues are already governed by environmental laws and regulations such as RCRA and CERCLA which are enforced by the U.S. EPA or state regulatory agencies. Having the Safety Board act upon environmental issues would dilute the function of the Board without providing additional benefit to resolving the environmental issues. The additional administrative requirements could adversely impact in DOE's program to comply with applicable Federal/state requirements.

(b) Although there are some overlapping concerns between environmental and safety issues, environmental laws and safety requirements are markedly different.

(c) In order for the Board to be qualified to handle environmental issues, the Board's expertise would need to be augmented significantly in both environmental regulatory and technical areas. The Board would have to have members with good working knowledge of RCRA, CERCLA and other environmental laws and regulations. Additionally, some members on the board would need to have technical expertise in RCRA hazardous waste disposal technology and environmental cleanup.

(d) There are numerous very complex technical, legal, and policy issues involved with environmental restoration of DOE facilities. Adding the responsibility of providing guidance on these issues would greatly broaden the workload of the board and dilute its intended focus. Under RCRA and CERCLA/SARA, all environmental restoration contractors will be regulated by Federal/state regulators.

Senator EXON. If the purpose and rationale for creating a safety board is to ensure that production requirements do not overshadow safety, is there any rationale for including environmental restoration in the Board's charter or for citing cleanup backlogs as justification for creating the Board? Does dealing with your environmental legacy have anything to do with safe production?

Mr. SALGADO. The Department is already operating under Environmental Protection Agency (EPA) jurisdiction for RCRA/CERCLA activities. The outside oversight Board would create an unneeded duplication of effort in the environmental area and it would probably hinder more than help the EPA. Dealing with past environmental problems does not have any impact on the safe operation of the defense production complex other than the competition for funds in fiscally constrained periods.

Senator EXON. Would you provide specific comparative measures of DOE reactor safety and commercial reactor safety? Specifically, can you provide statistics comparing reportable incidents, outage rates, and "scram" rates? (Other appropriate measures are welcome.) Is DOE's record better or worse than the commercial average?

Mr. SALGADO. A summary comparison of performance indicators for DOE Category A reactors with similar indicators for commercial power reactors for the years 1984 and 1985 is attached. The indicators include Unusual Occurrence Reports, Unplanned Automatic Scrams, Collective Radiation Exposure, Equivalent Availability, Forced Outage Rate, Low-level Solid Radioactive Waste and lost-time accident rate. Bar charts for each of these indicators that compare each of the DOE Category A reactors with commercial power reactor averages are provided along with a brief description and comparison of the indicator with commercial data. In addition, indicators for property loss rates, fire loss rates, lost workday incidence rates, and recordable injury incidence rates which compare DOE statistics with the National Safety Council data for the U.S. industry are included. The mission, functions, and operating modes of DOE's production, research and test reactors are markedly differed from commercial power reactors, which makes direct comparison of data not always completely possible. Nevertheless, the DOE data indicate that, overall, the DOE averages and trends for similar indicators are the same or better than commercial averages or trends.

Performance Indicators:

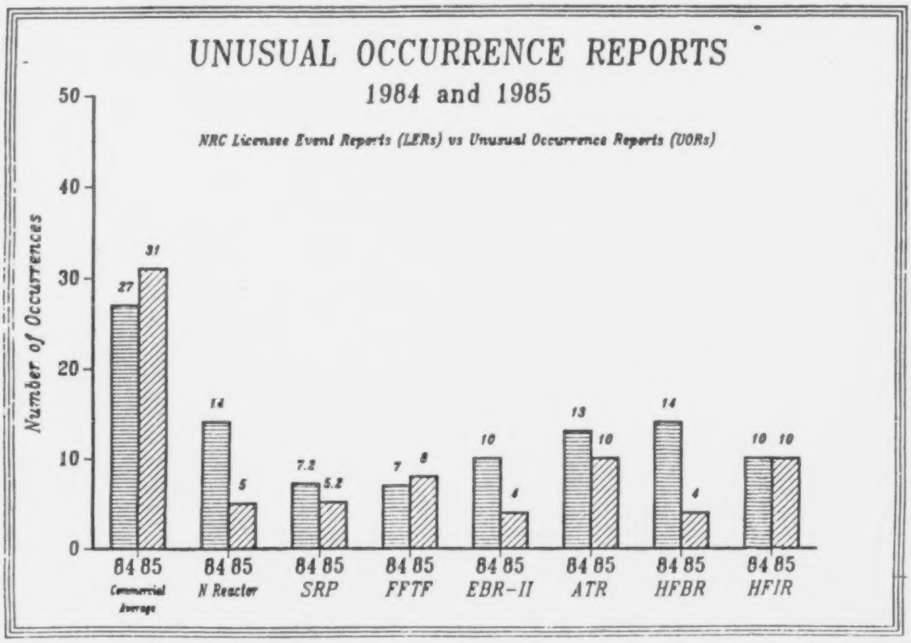
I. Summary Performance Indicators for DOE Category A reactors with commercial power reactors for the years 1984 and 1985: Unusual Occurrence Reports; Unplanned Automatic Scrams; Collective Radiation Exposure; Equivalent Availability; Forced Outage Rate; low-level solid radioactive waste; and lost-time accident rates.

II. Composite DOE and Contractor Injury and Property Damage Statistics: Property loss rates—excluding fires; fire loss rates; recordable injury incidence rates; and lost workday incidence rates.

1. Unusual Occurrence Reports:

This graph compares the number of reportable safety-related events which occurred at commercial and DOE Category A (power) reactors. An example would be a safety system becomes inoperable and the plant is shutdown in response. In commercial nuclear power plants these are known as Licensee Event Reports (LER) and for DOE reactors as Unusual Occurrence Reports (UOR). The reporting requirements for these two types of reports are generally comparable. This number is a direct indication of the frequency that the safe operation of a facility is challenged due to equipment failure, personnel error or external events. While nearly all UORs and LERs are not serious challenges to safety, they are a good indicator of the overall plant condition and safety of operations.

The results show significantly fewer reportable events for all DOE category A reactors than at commercial reactors. This is true in recent (1984-85) times as well as back to 1980. More importantly, for 7 of the 9 DOE reactors (3 at SRP), the trend is downward for the last several years. For the other two, it has remained nearly constant but lower than commercial experience.



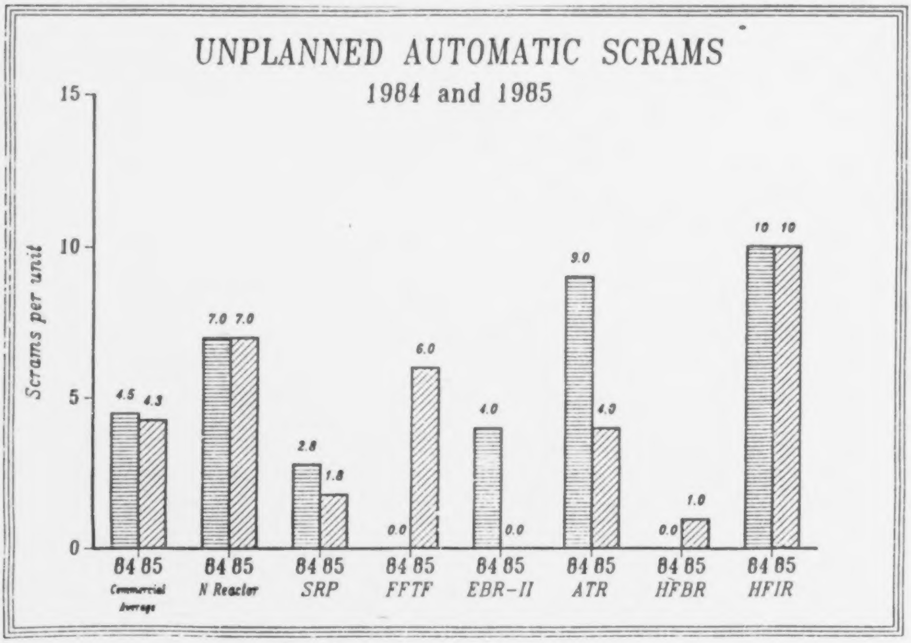
2. Unplanned Automatic Scrams:

These graphs show the average number of unplanned automatic scrams while the reactor is critical occurring at commercial nuclear power plants versus all scrams at a specific DOE Category A reactor.

Unplanned automatic scrams are those times when the reactor control rods are automatically inserted in the reactor core by the reactor protection system to shutdown a critical reactor in response to an indicated unsafe condition or protection system malfunction. It provides an indication of how well a plant is operated and maintained because scrams result from equipment failures or personnel errors that cause undesirable and unplanned thermal-hydraulic or reactivity transients. Manual scrams are not counted since operator-initiated scrams should not be discouraged.

It is also affected by the number of signals at a given reactor that can cause a scram. The higher the number, the more likely "spurious" or circuit failure scrams will occur. For many DOE reactors, the number of signals that can cause scrams is very high due to the unique and special use of the facility. For example, the N-Reactor has more than 2,000 scram signals while a typical modern commercial nuclear power plant has about 100 signals.

This fact is reflected in the data where the frequency of unplanned automatic scrams varies from zero in a given year for some reactors to slightly more than double the average for commercial PWR reactors. Overall, the DOE average for 1984-85 is the same as for the commercial PWRs.

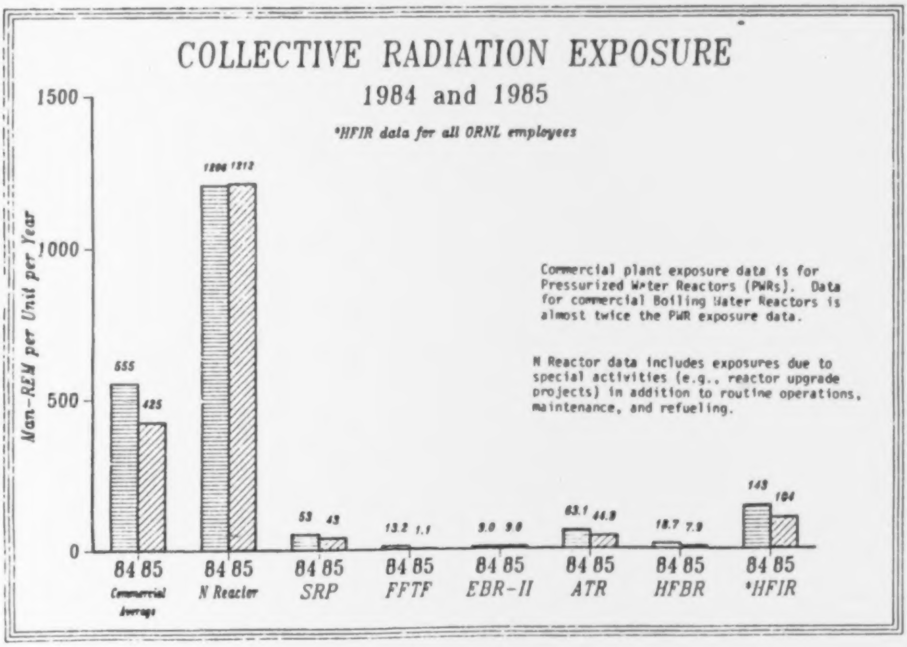


3. Collective Radiation Exposure:

These graphs show the average collective radiation exposure for all radiation workers in man-rem per reactor for commercial and DOE reactors.

The purpose of the collective radiation exposure indicator is to monitor efforts to minimize total radiation exposure at each facility and in the industry as a whole. Radiation exposure has been demonstrated to be related to health risks. This parameter is a measure of the effectiveness of radiological protection programs in minimizing this health risk to plant workers. It is also an indicator of overall plant condition where plants with well maintained, good performing and operated equipment will generally have lower collective exposures.

Exposure data is highly dependent on reactor type with commercial Boiling Water Reactor (BWR) exposures almost twice that of Pressurized Water Reactor (PWR) exposures. This trend is true for DOE reactors where the N Reactor data is comparable to BWR experience while all other DOE Category A reactor exposures are significantly below commercial BWR and PWR experience. The DOE exposure trend is also downward, and important indication of commitment to radiological protection.



Commercial plant exposure data is for Pressurized Water Reactors (PWRs). Data for commercial Boiling Water Reactors is almost twice the PWR exposure data.

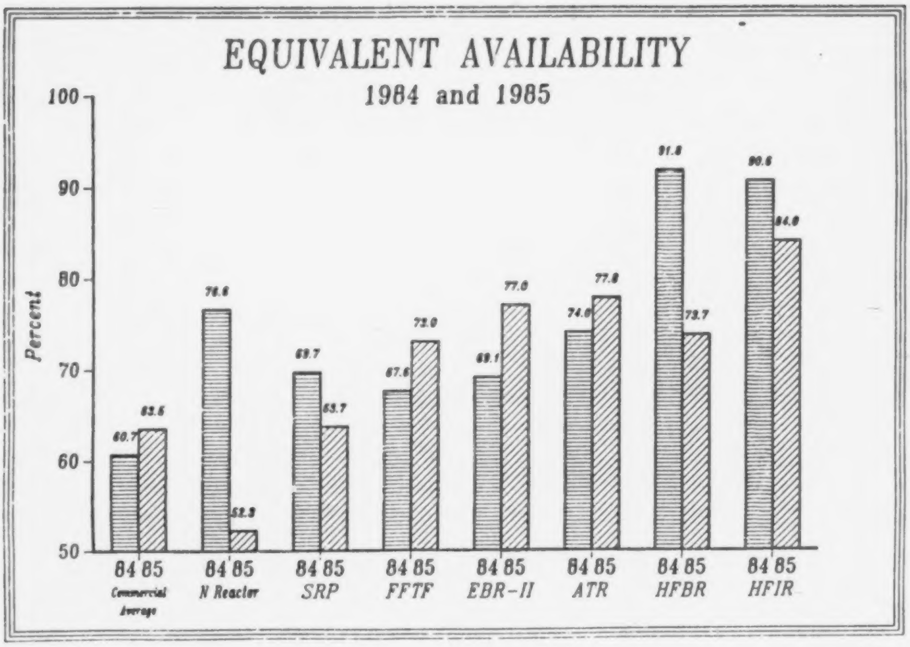
N Reactor data includes exposures due to special activities (e.g., reactor upgrade projects) in addition to routine operations, maintenance, and refueling.

4. Equivalent Availability:

These graphs show the percentage of the total electrical power a commercial nuclear power plant produced compared to what it could have produced at its rated capacity. The DOE reactor data generally show the percentage of thermal power produced compared to the thermal power possible or, the percentage of time available for operation.

The purpose of the equivalent availability factor indicator is to monitor progress in attaining high unit and industry equivalent availability. It provides an indication of the effectiveness of plant programs and practices in maximizing electrical or power generation and provides an overall indication of how well a plant is operated and maintained. Experience has shown that units with high equivalent availability factors and low forced outage rates are often well maintained, follow good operating practices, and can be expected to have a higher margin of safety.

The data show a high level of availability for DOE reactors as compared to commercial plants.

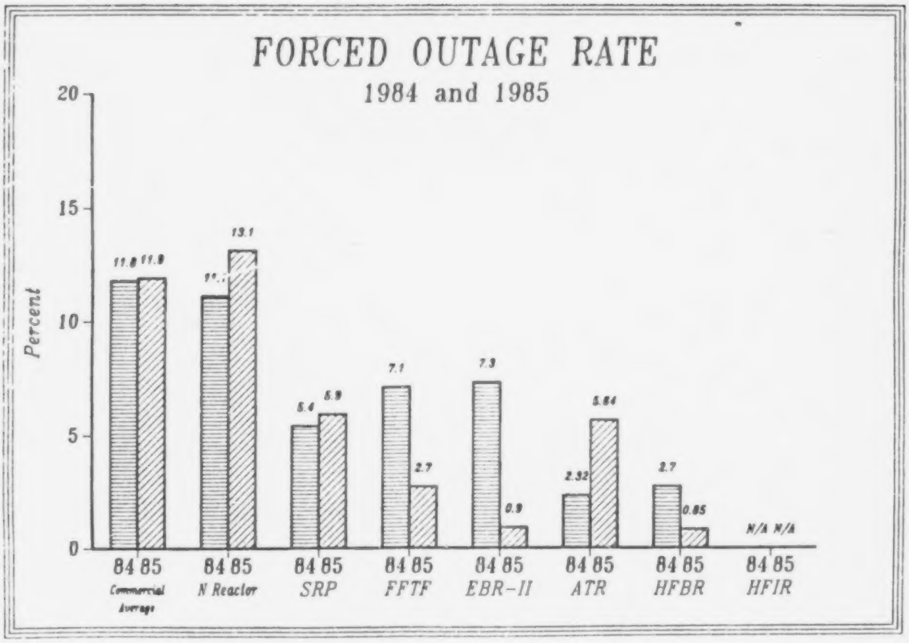


5. Forced Outage Rate:

These graphs show the percentage of time commercial nuclear power plants are off line due to forced events when they could otherwise be producing power. The DOE reactor data generally show the percentage of unscheduled downtime versus the operating time possible minus scheduled downtime. The lower the rate, the better the performance.

The purpose of the forced outage rate indicator is to monitor industry progress in minimizing unplanned outages that are forced as a result of equipment failure or other conditions. This indicator reflects the effectiveness of plant programs and practices (e.g., preventive maintenance and the correction of design problems) in maintaining systems available for safe power generation. Experience has shown that units with high equivalent availability factors and low forced outage rates are often well maintained, follow good operating practices, and can be expected to have a higher margin of safety.

The data show that all DOE reactors have forced outage rates comparable to or less than average commercial experience with most DOE reactor rates lower.



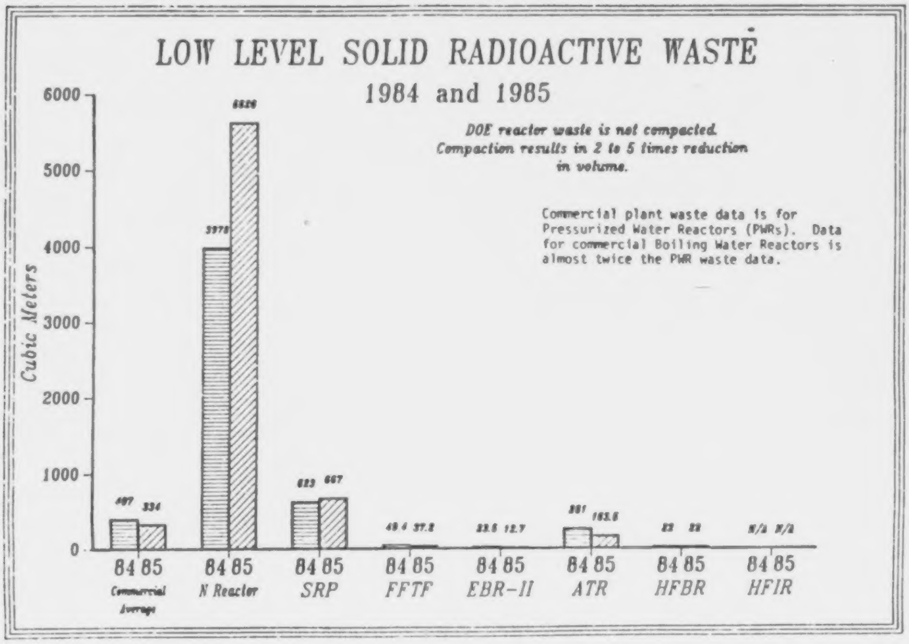
6. Low-level, Solid Radioactive Waste Volume:

These graphs show the average volume of solid radioactive waste per reactor for commercial and DOE reactors. Commercial waste is compacted while DOE waste is generally not compacted. Compacting reduces volume by a factor of 2 to 5.

The purpose of the volume of low-level solid radioactive waste indicator is to monitor progress toward minimizing the generation of low-level waste. Minimizing the amount of waste generated will reduce storage, transportation, and burial needs, and will address public concerns and will reduce the environmental impact of nuclear power. It is also an indication of the general plant condition where the better maintained and operated plants will have less waste generated. Also, when a reactor is undergoing major modification to contaminated systems, the level of waste generated will be significantly higher.

It should be noted that commercial Boiling Water Reactors (BWRs) typically generated about twice the volume of waste of that of a commercial Pressurized Water Reactor.

All but one DOE reactor has a history of generating less than, or at most an equivalent level of low level waste than commercial PWRs, most are consistently lower. The high volume of waste from N-Reactor in the last few years reflects the significant reactor upgrade projects which is also reflected in the collective radiation exposure for the period.



LOW LEVEL SOLID RADIOACTIVE WASTE

1984 and 1985

DOE reactor waste is not compacted. Compaction results in 2 to 5 times reduction in volume.

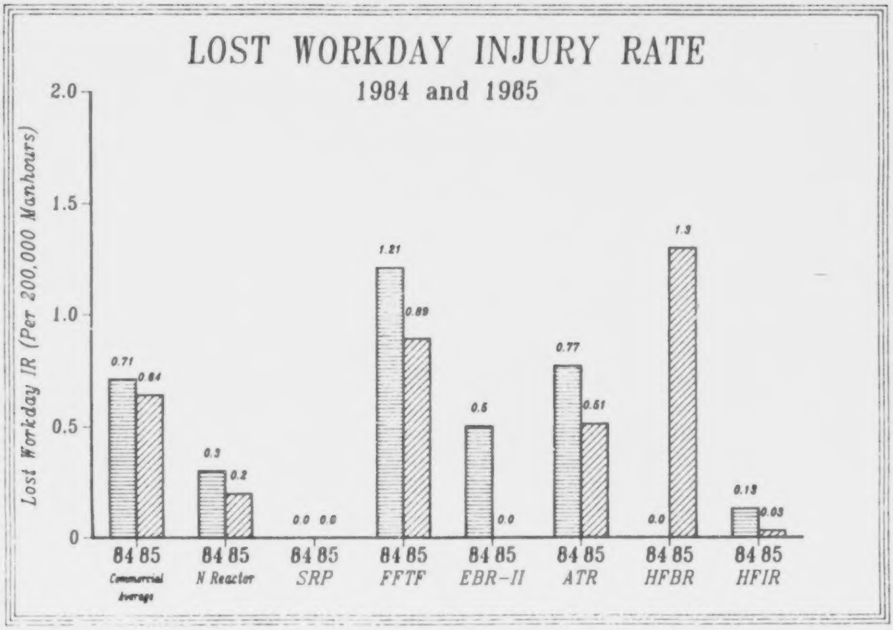
Commercial plant waste data is for Pressurized Water Reactors (PWRs). Data for commercial Boiling Water Reactors is almost twice the PWR waste data.

7. Lost-time Accident Rate:

These graphs show the number of worker injuries involving days away from work for every 200,000 man-hours worked for both commercial and DOE reactors.

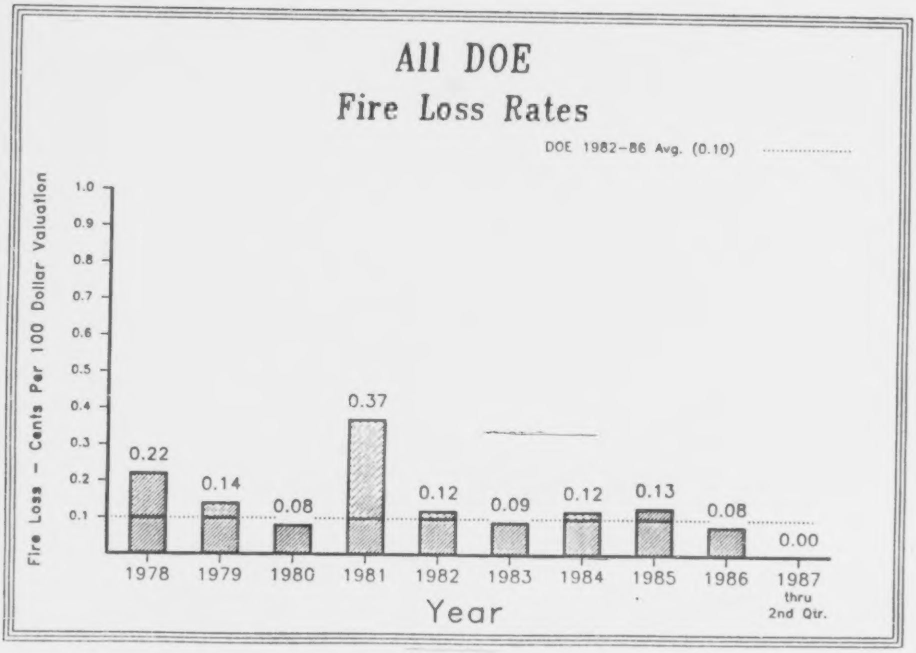
The purpose of the industrial safety lost-time accident rate indicator is to monitor progress in improving industrial safety performance. Lost-time accident rate was chosen as the personnel safety indicator over other indicators, such as injury rate or severity rate, because the criteria are clearly defined, utilities currently collect this data, and the data are the least subjective.

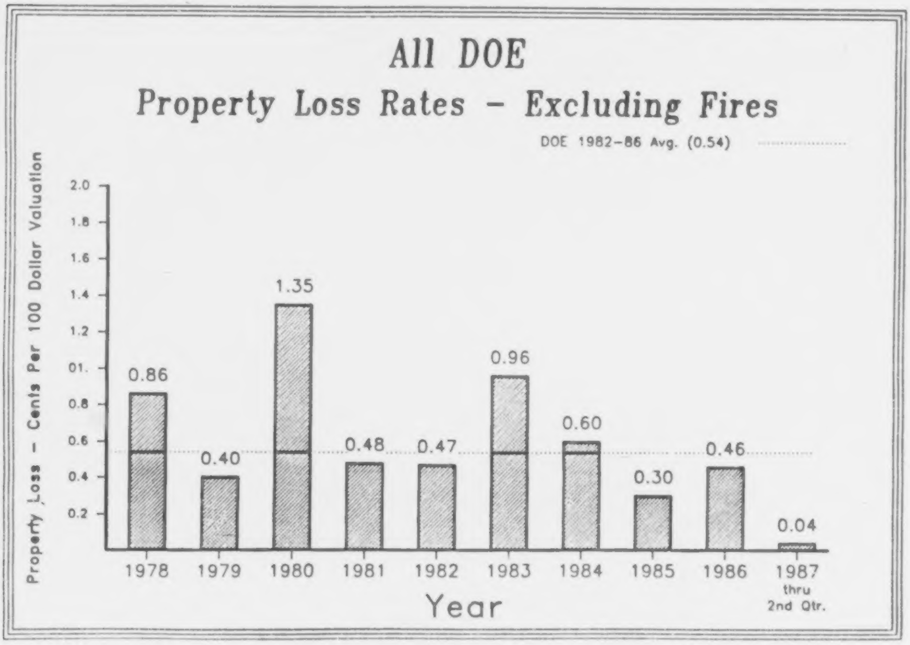
The DOE reactor data vary from an incidence rate of zero to a rate slightly less than twice the commercial rate. For most DOE reactors the rate is lower than average commercial experience, one reactor (FFTF) has had a few years experience with rates slightly above commercial experience. In addition, for DOE reactors with very small staff, the rate can be very high in years when one individual is injured, while for other years the rate is often zero.

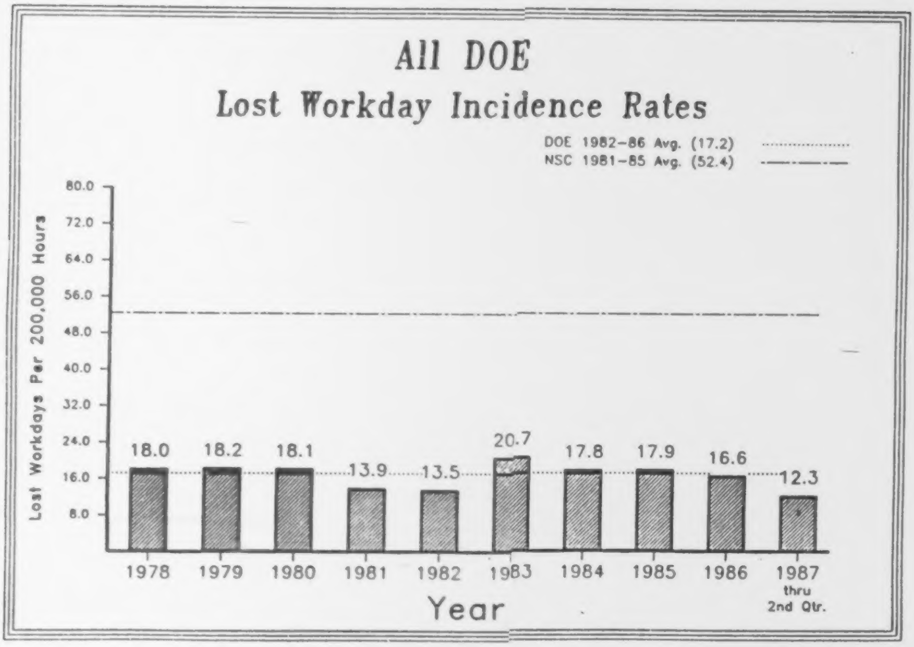


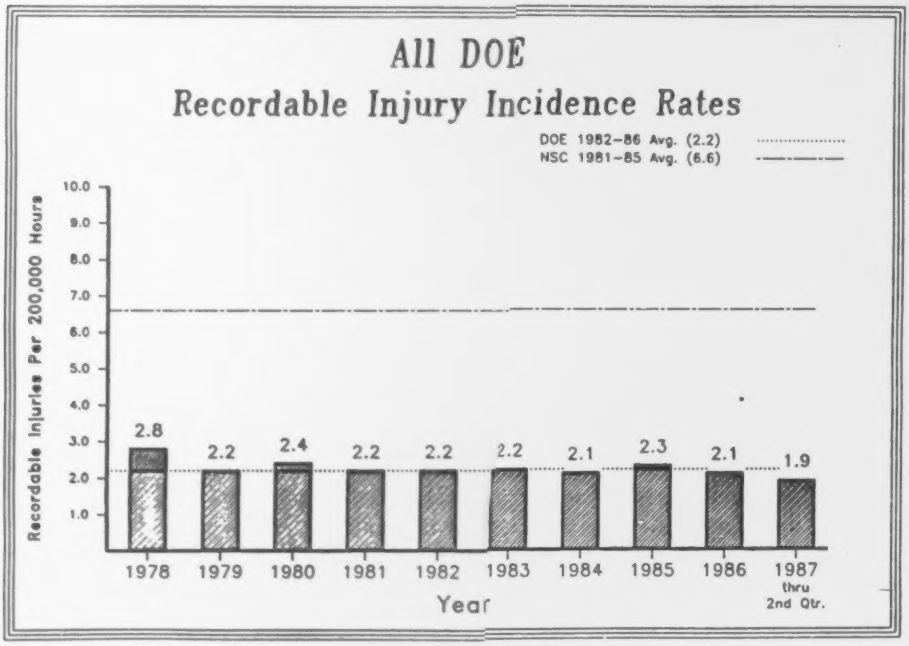
II. Composite DOE and Contractor Injury and Property Damage Statistics:
Recordable injury incidence rates.
Lost workday incidence rates.
Property loss rates—excluding fires.
Fire loss rates.

The graphs compare the DOE data with the National Safety Council data for the U.S. Industry.


All DOE
Fire Loss Rates


All DOE
Property Loss Rates – Excluding Fires


All DOE
Lost Workday Incidence Rates


All DOE
Recordable Injury Incidence Rates

Senator EXON. In your testimony, you mentioned quite a number of outside, independent safety reviews of DOE's nuclear complex. Could you list all of these review groups, including Government agencies, and note who requested them, whether you feel the reviews were beneficial, what impact they had, and whether their recommendations were binding or advisory?

Mr. SALGADO. In the past, the Department and its predecessor agencies have utilized outside independent reviews by the NRC's Advisory Committee on Reactor Safeguards, and independent reviews by the General Accounting Office and the DOE's Inspector General. These reviews have been beneficial to the Department and have resulted in improvements such as the establishment of the Safety Analysis and Review System based partly on recommendations from GAO and internal initiatives. The Department's internal, independent oversight group has more recently been reorganized and strengthened and increasingly utilizes outside consultants to provide objective reviews of Safety Analysis Reports for DOE's nuclear facilities and to assist them in the conduct of independent Technical Safety Appraisals and Design Reviews of major DOE nuclear facilities.

In the last 2 years, the Secretary has requested two major outside independent safety reviews. The first was an independent review of the N Reactor at Hanford by six outside consultants (i.e., the Roddis Panel) following the reactor accident at Chernobyl. This separate review was in addition to three safety reviews (a Design Review, a Technical Safety Appraisal, and a Special Safety Review of N Reactor relating to graphite fire safety) conducted by the Department's Environment, Safety and Health organization. Following these reviews, the Secretary requested the National Academy of Sciences to conduct an assessment of safety and technical issues on all of the Department's Category A reactors. These reviews have been extremely beneficial to the Department and have resulted in a number of physical upgrades and safety improvement programs at the Department's production reactors. In May 1987, the Secretary announced support for the concept of outside oversight as an additional independent source of continuing advice on the safe operation of DOE's nuclear facilities. The NAS report has subsequently reinforced the Secretary's position on this issue and a permanent Nuclear Safety Advisory Committee is now being established pursuant to the Advisory Committee Act. This action will provide a lasting oversight function and help restore the necessary public credibility of the Department's environment, safety and health program.

Senator EXON. What initiatives has the DOE undertaken to improve their safety and environment record?

Mr. SALGADO. Since 1985, that Department has undertaken a series of initiatives to improve DOE's safety and environment record. One key element of these improvements has been the strengthening of the Department's independent Environment, Safety and Health (ES&H) oversight program. The Headquarters ES&H organization was elevated and put under the auspices of an Assistant Secretary to provide an oversight function for ES&H.

One task of this new ES&H organization was to review all DOE orders related to ES&H. As a result, major revisions in such areas as quality assurance, nuclear safety, and industrial hygiene were made. Further improvements in DOE orders related to radiation protection, nuclear facility design, environmental protection, radiological monitoring requirements, hazardous and mixed waste management requirements, and Superfund implementation are well underway.

Two new programs to gain knowledge of specific environmental and safety concerns at DOE sites—the Environmental Survey and the Technical Safety Appraisal initiatives are a vital part of the improved ES&H oversight program. These two initiatives are, as was intended, identifying areas that need strong and immediate corrective actions.

Recognizing that the prime responsibility for environmental and safety performance is vested in DOE's line operating programs, the Secretary took the further step of issuing an Environmental Policy Statement and a corresponding Safety and Health Policy Statement in 1986. These policy statements made it unequivocally clear that good environmental and safety performance is a prime responsibility of DOE and that the Department will comply with the letter and spirit of environmental statutes and regulations and safety requirements.

The Department is undertaking other efforts related to institutionalizing the significant changes and improvements DOE has been making. The Department is developing long range plans for its defense facilities to address the problems associated with DOE aging nuclear facilities. These long range plans will address safety and environmental issues as fundamental considerations.

The Department is also in the process of implementing an Environmental Restoration Program to address environmental contamination caused by past waste management practices. A special budget category for these efforts has been created. The purpose for creating the new budget category is to provide a coherent, identifiable program to meet DOE's remedial action responsibilities under RCRA 3004(u) and CERCLA.

On October 29, 1987, the National Academy of Sciences and Engineering released an independent technical overview report requested by the Secretary on safety issues at DOE's production reactors. In immediate response to the NAS/NAE recommendations, the Secretary announced several new initiatives to address the concerns that have been raised. These initiatives include the establishment of an independent oversight panel to report directly to the Secretary, the preparation of an action plan for strengthening internal safety oversight, the development of a plan for further revising the DOE order system and safety standards, and the development of an action plan to resolve each of the technical recommendations in the report.

Senator EXON. How does the Department meet its responsibilities and authorities as required by the Atomic Energy Act?

Mr. SALGADO. The DOE (and its predecessors the ERDA and the AEC) derives the authority and responsibility for the control of its nuclear operations from the Atomic Energy Act of 1946. This responsibility has been continued through the 1954 amendments, and the Energy Reorganization Act of 1974 and the Energy Organization Act of 1977.

The Department meets the provisions of the Act by implementing regulations promulgated pursuant to the Act and through an internal order system. Some of the basic requirements follow:

Safety is a line management responsibility extending from the Secretary through the program secretarial officer (PSO) to the Field Office Manager. The Field Office Manager provides direction and oversight to the contractors. Safety is a primary responsibility and is not isolated or treated differently from other management considerations.

Headquarters independent ES&H staff organization develop appropriate policies, guidelines and requirements for health and safety, and inspect and appraise the performance of contractors and DOE line management in implementing the policies and guidelines.

Senator EXON. In establishing ES&H, why was a "clear and present danger" model selected rather than another "risk model"? What other risk models were considered?

Mr. SALGADO. The term "clear and present danger" is used by the Office of the Assistant Secretary for Environment, Safety and Health only in connection with a function delegated to the Assistant Secretary involving a safety-related shutdown of any of DOE's nuclear facilities when the Operations Office Manager (the Contracting Officer charged with direction of Contractor operations) has not yet directed a shutdown of the facility in question. The Office has a much broader mandate: to help assure that none of the operations at DOE's facilities pose an unacceptable risk to the workers, members of the public, or the environment. The clear and present danger standard is a sensible threshold to assure prompt action when the need is great. There is nothing to prevent the Assistant Secretary from recommending a shutdown, a power reduction, or some other course of action in the face of an identified safety concern even though the risks have not risen to the level of a clear and present danger. The risk models employed by the Department are those that are mandated in the Atomic Energy Act, as amended, standards in the Occupational Health and Safety Act, the Resource Conservation and Recovery Act, and other statutes which governs the operations of DOE's facilities.

Senator EXON. In the event Assistant Secretary Walker's recommendation to close a facility is overruled, why are the Secretary's options/actions vague at this point?

Mr. SALGADO. The circumstances leading to a recommendation for facility shutdown cannot be specified in advance. It would be even more difficult to identify scenarios where some compelling interest or factual dispute which might lead to a temporary or permanent rejection of a recommendation for shutdown. As a practical matter, it is highly improbable that a facility will not be allowed to operate at levels of risk approaching a clear and present danger.

Senator EXON. A field operation has the option of exempting a facility from safety order. Why was this included instead of requiring a review by higher authorities?

Mr. SALGADO. The process of translating policy contained in Headquarters' Orders, into specific directives, tailored to meet the need of a specific facility is a necessary part of dealing with widely diverse facilities and operations. One of the responsibilities of the Office of the Assistant Secretary for Environment, Safety and Health is to review actions by line management to assure that all necessary safety

Orders are being followed. The Department announced on October 29 that the safety Order system was going to be strengthened to take into account concerns by a panel of the National Academy of Sciences and others. This strengthening will include provisions for better review and more centralized control over safety standards and criteria.

Senator EXON. What percent of Assistant Secretary Walker's recommendations have been implemented?

Mr. SALGADO. Appraisals are routinely performed by the staff and support contractors of the Office of the Assistant Secretary for Environment, Safety and Health. These normally culminate in recommendations for action which are transmitted by the Assistant Secretary. All recommendations for action must be implemented on a schedule approved by the Assistant Secretary.

Senator EXON. What percent of these recommendations implemented has a negative impact on production?

Mr. SALGADO. No definitive answer can be provided. Many recommendations that are made have no clear-cut impact on production (e.g., a recommendation to increase the health physics staffing at the Albuquerque Operations Office). Others have a clear impact and demonstrate the Department's commitment to safety (e.g., the recommendation to reduce power of the Savannah River reactor to a level at which there was greater assurance of effective safety system action). As a general proposition, it could be argued that even where a recommended safety or environmental action has a short-term impact on production, the long run impact would be positive in that a safer and more environmental production complex will have a greater likelihood of meeting long-term production requirements.

Senator EXON. Gentlemen, thank you very much. We appreciate your coming over and we are adjourned.

[Whereupon, at 4:17 p.m., the subcommittee was adjourned.]

# SAFETY OVERSIGHT FOR DEPARTMENT OF ENERGY NUCLEAR FACILITIES

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FRIDAY, OCTOBER 30, 1987

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON STRATEGIC FORCES
AND NUCLEAR DETERRENCE,
*Washington, DC.*

The committee met, pursuant to notice, at 9:44 a.m., in room SR-222, Russell Senate Office Building, Senator J. James Exon (chairman) presiding.

Present: Senators Exon, Glenn, Thurmond, and Cohen.

Staff present: Robert F. Bott, Sherri Wasserman Goodman, William E. Hoehn, Jr., Ronald P. Kelly, T. Kirk McConnell, professional staff members; Mickie Jan Wise staff assistant.

Also present: Jeffrey B. Subko, assistant to Senator Exon; Edward M. McGaffigan, Jr., assistant to Senator Bingaman; Terrence Lynch, assistant to Senator Shelby; and James M. Bodner, assistant to Senator Cohen.

## OPENING STATEMENT BY SENATOR J. JAMES EXON, CHAIRMAN

Senator EXON. The subcommittee will come to order.

For the information of all, we are in open session this morning and will be in open session unless some other decision is made at some appropriate time along the way.

I apologize for the slight delay in beginning the hearing this morning. It so happened we had a vote scheduled at 9:30 and my colleagues are voting now. They will be back shortly. But in the interest of saving time, I want to get the hearing going, and I'll begin with my opening statement. And then Senator Thurmond will return, and I believe that he has a short opening statement. And then we will proceed with your testimony.

Today we continue our hearings on defense nuclear safety matters as part of our consideration of Title I of S. 1085, the Nuclear Protections and Safety Act of 1987.

I am very pleased to be able to receive the report of the National Research Council as we work to strengthen safety oversight for the Department of Energy's nuclear facilities.

I note with interest your conclusion that the Department of Energy can accomplish its reactor safety functions if it dedicates itself to that task.

Your report also observes that DOE lacks an advisory board similar to the advisory committee for reactor safeguards for commercial reactors. You recommend that an independent external safety oversight committee advisory to the Secretary of Energy be established.

Your recommendation confirms my own analysis that we have a need for a high level, highly visible committee composed of recognized experts to advise the Secretary of Energy on the reactor operations and other safety issues across this aging production complex that all of us, of course, are very much concerned about.

Your report also confirms my analysis that we need to design a cost-effective safety system and need to carefully plan for the modernized production system in a tight budget environment.

In response to your report, the Department of Energy has already taken the first step in implementing your recommendation by establishing an external oversight committee for nuclear safety.

Our first witness today will be Mr. Meserve. Do I pronounce that right?

Mr. MESERVE. Very close, sir. It's Meserve.

Senator EXON. Meserve. Out first witness today will be Mr. Meserve. Following his testimony, we will hear from Gerald Tape.

Before we begin, I just want to say that we will accept all of the very important testimony that you have prepared in full without objection, and that will apply to this panel and any subsequent panel. I would hope that in the interest of time, each of the witnesses could summarize your statement as best you can, and then we will proceed to questions and answers.

I'll be glad to recognize Senator Thurmond. Senator Thurmond, I said that your opening statement would follow mine. And if you care to deliver that at this time, we would like to have it.

Senator THURMOND. Thank you very much. I'll just take about a minute and a half.

Mr. Chairman, I join you in welcoming Mr. Meserve to the hearing this morning, and I extend my personal thanks to him and to the National Research Council for agreeing to be with us. I had the pleasure of talking with him yesterday. I know this has been a very busy week for Mr. Meserve given the publication just yesterday of the report on safety issues at the defense production reactors.

I wish to reiterate my congratulations to the council for the outstanding job that they have done in researching and making that report. I understand and am delighted to learn that the Department of Energy views this report very positively and is already taking steps to implement its many recommendations. That's correct, isn't it?

Mr. MESERVE. Yes, it is.

Senator THURMOND. Mr. Chairman, two recommendations in the report are most germane to issues in which this committee has a very strong interest. One follows from the recognition of the age of our production reactors, and there's a recommendation that work on a new production reactor be accelerated. I can't emphasize more that what you recommended is right in line with my thinking, and I think it has got to be done and done at once.

The second is entirely appropriate to this hearing and is a recommendation that an independent, external safety oversight committee advisory to the Secretary of Energy be established.

I look forward to this morning's testimony not only as a basis to deal with a wide range of aging related problems that confront the nuclear weapons complex, but also as a guide to the markup of S. 1085, which I understand must begin next week.

I want to thank you, Mr. Chairman.

Senator EXON. I'm pleased at your statement, Senator Thurmond.

Before we begin, Mr. Meserve, will you begin by introducing the colleagues that you have brought with you today from the study panel. We appreciate very much them coming.

## STATEMENT OF RICHARD MESERVE, COVINGTON & BURLING, CHAIRMAN, COMMITTEE TO ASSESS SAFETY AND TECHNICAL ISSUES AT DEPARTMENT OF ENERGY REACTORS, NATIONAL RESEARCH COUNCIL, ACCOMPANIED BY NEIL TODREAS, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, MEMBER, COMMITTEE TO ASSESS SAFETY AND TECHNICAL ISSUES AT DEPARTMENT OF ENERGY REACTORS, NATIONAL RESEARCH COUNCIL; DANA A. POWERS, SANDIA NATIONAL LABORATORY, MEMBER, COMMITTEE TO ASSESS SAFETY AND TECHNICAL ISSUES AT DEPARTMENT OF ENERGY REACTORS; STEVEN M. BLUSH, COMMISSION ON PHYSICAL SCIENCES, MATHEMATICS AND RESOURCES, STUDY DIRECTOR, COMMITTEE TO ASSESS SAFETY AND TECHNICAL ISSUES AT DEPARTMENT OF ENERGY REACTORS, NATIONAL RESEARCH COUNCIL

Mr. MESERVE. I am very pleased, Senator to join you this morning to discuss the report released yesterday by the National Research Council entitled "Safety Issues at the Defense Production Reactors." I am joined by several members of the committee. On my left is Neil Todreas. Neil is the chairman of the Department of Nuclear Engineering at M.I.T. And on my right is Dana Powers who is on staff at Sandia National Laboratory. On my far right I am joined by Steven Blush who is the staff director for the study.

There were 13 other members of our committee, and they are listed on Roman III of our report. It's unfortunate they could not be with us this morning, but I want to assure you that they were very active and hardworking contributors to the report that we are discussing with you today.

I shall first describe the——

Senator EXON. Let me ask you a question as we begin. Were the findings of the committee overall unanimous? Were there serious differences of opinion on how we best proceed? Or in the end would you describe the findings, for the most part, all in total agreement?

Mr. MESERVE. The standard process for the production of Academy reports is to allow any member of the committee who disagrees with any of the statements to file a dissenting report, if he so chooses. The report that we are discussing today was a unanimous report.

Senator EXON. Unanimous.

Mr. MESERVE. And we had the benefit, I should add, of a very thorough review by a review committee that examined the report of the committee and came back with suggestions as to how we could clarify and strengthen our report. And we had some interaction with the reviewers that served to assure that our report could withstand the very stringent scrutiny. So, we had a unanimous report that has had peer review by people who are experts in the area of nuclear safety.

Senator EXON. Will you or anyone on your panel be saying or addressing any key differences, if there were any, in developing the report's conclusion?

Mr. MESERVE. I am trying to suggest to you, Mr. Chairman, that there were no key differences.

Senator EXON. There were no key differences.

Mr. MESERVE. This was a unanimous report.

Senator EXON. That was what I was trying to get at.

Mr. MESERVE. This is a unanimous report.

Senator EXON. I was trying to wait until Senator Thurmond returned for his report. But in the interest of time, would you please proceed and at an appropriate time I'll allow the ranking member to make his opening statement, which will be placed in the record immediately following mine. Please proceed.

Mr. MESERVE. I will briefly summarize the written statement I submitted earlier. I shall try to describe the origins and nature of the committee's work, and then turn to several of the issues that are discussed in our report.

Shortly after the accident at the Chernobyl nuclear power station in April 1986, Secretary Herrington requested that the National Academy of Sciences and the National Academy of Engineering establish a committee to examine safety and technical issues at the Department's major reactors. The report released by the committee yesterday provides a partial response to the Secretary's request.

At the suggestion of the Department, the committee focused its attention initially on the defense production reactors, the reactors that produce tritium and plutonium for nuclear weapons. Our report covers the N reactor at the Hanford Nuclear Reservation in Washington, and the K, L and P reactors at the Savannah River Plant in South Carolina. A subsequent report, to which the committee will now turn its efforts, will deal with the remainder of the Department's large reactors.

Before turning to our analysis and conclusions, I think it is important to mention some of the things we did not do. The committee did not attempt to reach any bottom line judgment as to whether the reactors are safe. Such an assessment would involve a determination of acceptable risk, a matter of obvious importance, but one that is more the province of the Congress and of the Department of Energy than of the committee. For the same reasons, the committee did not address such specific issues as whether to restart the N reactor which, I'm sure you are aware, is on stand-down now.

It must be noted, however, that the production reactors have many desirable features that serve to minimize either the likelihood or the extent of an accident.

Despite the fact that the Chernobyl accident was the impetus for the study, the committee concluded that the Chernobyl accident could not and should not provide the foundation for our analysis. Early press reports emphasized a superficial similarity between the

N reactor and the Russian RMBK reactor at Chernobyl; namely, that both use graphite as a neutron moderator. The committee concluded that our examination should be guided by issues we identified rather than any real or apparent similarities between the production reactors and the Chernobyl reactor. We were led to this conclusion because there are very significant differences between the RMBK reactor and the N reactor. Perhaps the most significant lesson from Chernobyl for the production reactors is simply that a severe accident can occur unless design and operation are approached with care and integrity.

The committee's report includes a large number of conclusions and recommendations. Although we are prepared to answer your questions on any aspect of the report, I will focus my comments on three areas that I believe may have particular significance for the subcommittee.

First, aging. The Savannah River reactors were built in the 1950s and the N reactor began operation in 1963. Both reactor types are beginning to experience life-limiting material aging brought on by irradiation and corrosion. This aging could affect safety and is likely to limit the remaining useful lives of the reactors.

To avoid corrosion of the aluminum-clad fuel, the Savannah River reactors operate with a coolant that is mildly acidified and contains a relatively high level of dissolved oxygen. In this environment, the reactor's high carbon stainless steel is susceptible to stress corrosion cracking in the region of welds. Although the piping in the reactors can be replaced, the replacement of the reactor tanks is deemed infeasible.

The C reactor was retired in service in 1986 when it was decided that cracks in the reactor tank could not be repaired. No cracking has yet been observed in the other Savannah River reactor tanks, and the contractor has embarked on a program to detect cracking before rupture could occur. Nonetheless, unless a repair technology is developed, all of the Savannah River reactors may eventually have to be retired from service because of cracking problems. No one knows precisely when this may occur.

Acute aging problems also exist at the N reactor. As has been widely publicized, radiation damage is causing the graphite moderator to expand. Because the graphite growth is nonuniform, the expansion places stresses on the process tubes and cooling tubes that are interspersed throughout the graphite moderator. At the same time the process tubes are being embrittled by exposure to radiation. And gouging of the distorted process tubes during fuel insertion provides opportunities for crack formation. In short, graphite expansion is placing stresses on the hardware in the core at a time when irradiation-induced embrittlement is making the metal components less able to withstand these stresses.

As the Department has already recognized, these problems will reach a critical juncture in the 1990s when the graphite moderator expands to the point that it comes in contact with the reactor vault's biological shields. The Department has stated that it will shut down the N reactor at that time.

In sum, the N reactor and the Savannah River reactors are confronting a number of problems related to acute aging that cannot be avoided. Indeed, we conclude that the remaining useful life of the production reactors is likely to be equal to or shorter than the time to authorize, fund, design and build new facilities to produce plutonium and tritium.

The contractors have comprehensive monitoring programs under way to detect a serious problem before an accident occurs, but if repairs cannot be made, the affected reactor must then either be retired or operated under circumstances in which safety may be compromised. If the United States finds it necessary to have a reliable and safe capability for the production of strategic nuclear materials, then planning for new production reactors or other alternatives must be accelerated.

The main body of the report consists of an evaluation of technical issues relating to potential severe accidents at the production reactors. The committee concluded that current understanding of the behavior of the reactors is insufficient to permit a realistic assessment of the effectiveness of the reactor designs in mitigating the consequences of severe accidents, should they occur. Let me discuss a few examples.

The production reactors are supposed to be designed and operated so as to survive a major loss-of-coolant accident, a highly unlikely accident that could arise if the largest coolant pipe were to rupture completely. The production reactors have safety systems in place that are supposed to respond appropriately to exactly this postulated threat, and each of the reactors is meant to be operated only at power levels at which these safety systems will be effective.

The committee found that the analyses to demonstrate the adequacy of these measures is as yet incomplete at both sites. We, therefore, recommend that substantial efforts be undertaken to develop a thoroughly documented understanding of the behavior of the reactors in a loss-of-coolant accident. I emphasize that the committee's recommendations in this area deal with the need for analyses to validate the adequacy of the reactors to respond. We have not concluded that the reactors as currently designed and operated will fail to respond adequately.

The production reactors differ from commercial power reactors in their use of confinement systems rather than reactor containments as barriers to the release of radionuclides. The confinement system aims to control the effluents that would be generated in the event of an accident by releasing contaminated air within the confinement structure through filters that capture some of the radionuclides. A containment system, by contrast, is intended to contain substantially all of the radionuclides.

The committee concludes that in theory the confinement approach can provide an acceptable means for mitigating the consequences of accidents. We found, however, that there are significant uncertainties about the ability of the existing production reactor confinements to mitigate the effects of a severe accident.

The design and operation of the filtration systems are obviously crucial, but their effectiveness is dependent on the types, amounts and sizes of particles that would be generated. Research with commercial nuclear power plants, as well as studies of radionuclide release from the Savannah River fuels, suggest that some of the assumptions used in the design of the filtration system may be unrealistic.

The committee, therefore, recommends that the Department demonstrate that the confinement systems at the production reactors have the capability to withstand realistic accident loads and to provide acceptable attenuation of radionuclide releases.

Let me turn now to the final principal issue. Although the committee focused its attention on a series of technical issues, we also examined the management system that is in place to assure safe operation. Let me first discuss DOE's relationship with its contractors and then turn to some of the committee's recommendations for changes in the current management systems.

The contractors responsible for the operation of these reactors have excellent records of safe operation. Perhaps partly because of this record, we found that DOE has tended to defer to the contractors' expertise and to rely on their efforts to identify, evaluate and resolve safety issues. The DOE staff assigned to safety oversight of the reactors is small and lacks a depth of technical experience commensurate with that of the contractors.

Although the Department must allow its contractors a degree of technical discretion, the committee believes that DOE's involvement should be sufficiently comprehensive as to allow it to evaluate all aspects of the contractor's performance. The committee recommends that DOE augment the resources and talent it assigns to ensuring the safety of these reactors. Moreover, we recommend that the Department enhance its ongoing efforts to strengthen its internal safety organization.

In addition, we found that the safety oversight of the reactors has been ingrown and has been conducted largely outside the scrutiny of the public. Indeed, we considered whether the safety responsibilities now assigned to the Department should be transferred to the NRC or some analogous new entity created outside the Department. We concluded that DOE can accomplish its reactor safety functions if it dedicates itself to the task, but in our view an independent and aggressive oversight committee is needed to assist the Department and to build public confidence that the reactors are being operated to high safety standards.

Among other features, the committee should be made up of members of recognized stature in reactor safety, should include individuals from outside the DOE community, should set its own agenda, should have thorough review authority, and should be assisted by a full-time staff.

Our major conclusions and recommendations may be briefly summarized. While we did not determine whether the production reactors are safe or unsafe, we did identify a number of important safety, technical and management issues that should be addressed. The reactor facilities are old and are showing inevitable signs of aging. Their useful operating lives are likely to be limited regardless of any technical fixes that may be employed. Current understanding of how the N reactor and the Savannah River reactors would behave during severe accidents is not complete and should be developed promptly. Management and safety oversight for the reactor facilities should be strengthened through more detailed review by DOE safety personnel and by establishment of an aggressive, independent oversight committee.

Many of the issues identified by our committee have already been recognized by DOE and its contractors. The Department has taken steps to respond to some of our concerns, and their willingness to do so is welcome. Our hope is that the conclusions and recommendations presented in our report will serve to bolster and sustain current efforts to ensure the safe operation of the Nation's defense production reactors.

We would be happy to respond to your questions.

[The prepared statement of Richard Meserve follows:]

Testimony of
Richard A. Meserve, Chairman
Committee to Assess Safety and
Technical Issues at DoE Reactors
of the
National Research Council

Mr. Chairman and Members of the Committee:

I am very pleased to join you this morning to discuss the report released today by the National Research Council entitled Safety Issues at the Defense Production Reactors. I am Richard A. Meserve, a partner in the law firm of Covington & Burling, and the chairman of the committee that produced the report. I am joined by several members of the committee.

I shall first describe the origins and nature of the committee's work. I shall then turn to several of the issues discussed in our report. Let me note at the outset, however, that any brief statement can not do justice to all of the matters that the committee evaluated; the report, rather than my remarks today, is the authoritative statement of the committee's conclusions and recommendations.

## I.

Shortly after the accident at the Chernobyl Nuclear Power Station in April 1986, Secretary Herrington requested that the National Academy of Sciences and the National Academy of Engineering establish a committee to examine safety and technical issues at the Department's major reactors. The report released by the committee today provides a partial response to the Secretary's request. At the suggestion of the Department, the committee focused its attention initially on the defense production reactors -- the reactors that produce tritium and plutonium for nuclear weapons. Our report covers the N Reactor at the Hanford Nuclear Reservation in Washington and the K, L, and P reactors at the Savannah River Plant in South Carolina. A subsequent report, to which the committee will now turn its efforts, will deal with the remainder of the Department's large reactors.

The committee has attempted to fulfill its task in a variety of ways. We, of course, visited the reactors and interviewed both DoE staff and the contractor personnel who actually operate the reactors. DoE, the contractors, and others briefed the committee on numerous occasions at the sites, in Washington, and elsewhere. The committee benefited from public hearings that it conducted at cites in the vicinity of the reactors. And finally, we reviewed extensive documentation provided by DoE and its contractors. (The extent of this documentation is reflected in the 50-page bibliography included in the report.) The committee could not have completed its study without the assistance of all those who provided relevant information.

Before turning to our analysis and conclusions, I think it is important to mention some of the things we did not do. First, the committee's efforts were confined to an examination of technical and safety issues at the production reactors. We did not examine other facilities in the defense weapons complex. Moreover, we did not examine the current or projected demand for the nuclear materials that are produced in the reactors. These matters, although unquestionably important, fell outside our charge.

The committee did not attempt to reach any bottom-line judgment as to whether the reactors are "safe." Such an assessment would involve a determination of acceptable risk --

a matter of obvious importance, but one that is more the province of the Congress and of the DoE than of the committee. For the same reasons, the committee did not address such specific issues as whether to restart the N reactor. It must be noted, however, that the production reactors have many desirable features that serve to minimize either the likelihood or the extent of an accident. Let me list a few:

- The reactors are in relatively isolated locations.
- The Savannah River and N reactors have operated for over 25 years; there is extensive operating experience.
- The control mechanisms enter the reactors in low-pressure regions, facilitating their insertion and largely eliminating the potential for accidental ejection.
- Both types of reactors have backup shutdown systems that supplement the normal control systems.
- The reactors have emergency core cooling systems that can be reliably activated.
- The Savannah River reactors operate at lower temperature and pressure than commercial power reactors (or the N Reactor) and hence their stored energy is significantly lower, reducing the potential threat in an accident.

These positive features should be borne in mind as the committee's report is examined.

Despite the fact that the Chernobyl accident was the impetus for the study, the committee concluded that the Chernobyl accident could not and should not provide the foundation for our analysis. Early press reports emphasized a superficial similarity between the N reactor and the Russian RBMK reactor at Chernobyl -- namely, that both use graphite as a neutron moderator. The committee concluded that our examination should be guided by issues we identified, rather than any real or apparent similarities between the production reactors and the Chernobyl reactor. We were led to this conclusion because there are very significant differences between the RBMK reactor and the N Reactor. Perhaps the most significant lesson from Chernobyl for the production reactors is simply that a severe accident can occur unless design and operation are approached with care and integrity.

## II.

The committee's report includes a large number of conclusions and recommendations. Although we are prepared to answer your questions on any aspect of the report, I will focus my comments on three areas that I believe have particular significance for the Congress.

### A. Aging.

The Savannah River reactors were built in the 1950s and the N Reactor began operation in 1963. Both reactor types are beginning to experience life-limiting material aging brought on by irradiation and corrosion. This aging could affect safety and is likely to limit the remaining useful lives of the reactors.

To avoid corrosion of the aluminum-clad fuel, the Savannah River reactors operate with a coolant that is mildly acidified and contains a relatively high level of dissolved oxygen. In this environment, the reactor's high-carbon stainless steel is susceptible to stress-corrosion cracking in the region of welds. Although the piping in the reactors can be replaced, the replacement of the reactor tanks is deemed infeasible. The C reactor was retired from service in 1986 when it was decided that cracks in the reactor tank could not be repaired. No cracking has yet been observed in the other Savannah River reactors, and the contractor has embarked on a program to detect cracking before rupture could occur. Nonetheless, unless a repair technology is developed, all of the Savannah River reactors may eventually have to be retired from service because of cracking problems. No one knows precisely when this may occur.

Acute aging problems also exist at the N reactor. As has been widely publicized, radiation damage is causing the graphite moderator to expand. Because the graphite growth is nonuniform, the expansion places stresses on the process tubes and cooling tubes that are interspersed throughout the graphite moderator. At the same time, the process tubes are being embrittled by exposure to radiation. And gouging of the distorted process tubes during fuel insertion provides opportunities for crack formation. In short, graphite expansion is placing stresses on the hardware in the core at a time when irradiation-induced embrittlement is making the metal components less able to withstand these stresses. As the Department has already recognized, these problems will reach a critical juncture in the 1990s when the graphite moderator expands to the point that it comes in contact with the reactor vault's biological shields. The Department has stated that it will shut down the N Reactor at that time.

In sum, the N reactor and the Savannah River reactors are confronting a number of problems related to acute aging that can not be avoided. Indeed, we conclude that the remaining useful life of the production reactors is likely to be equal to or shorter than the time needed to authorize, fund, design, and build new facilities to produce plutonium and tritium.

The contractors have comprehensive monitoring programs underway to detect a serious problem before an accident occurs. But if repairs cannot be made, the affected reactor must then either be retired or operated under circumstances in which safety is compromised. If the United States finds it necessary to have a reliable and safe capability for the production of strategic nuclear materials, then planning for new production reactors or other alternatives must be accelerated.

B. Severe Accident Analysis.

The main body of the report consists of an evaluation of technical issues relating to potential severe accidents at the production reactors. The committee concluded that current understanding of the behavior of the reactors is insufficient to permit a realistic assessment of the effectiveness of the reactor designs in mitigating the consequences of severe accidents should they occur. Let me discuss a few examples.

1. Like commercial power reactors, the production reactors are supposed to be designed and operated so as to survive a major loss-of-coolant accident -- a highly unlikely accident that could arise if the largest coolant pipe were to rupture completely. The production reactors have safety systems in place that are supposed to respond appropriately to exactly this postulated threat, and each of the reactors is meant to be operated only at power levels at which these safety systems will prove effective. The committee found that the analyses to demonstrate the adequacy of these measures is as yet incomplete at both sites. We, therefore, recommend that substantial efforts be undertaken to develop a thoroughly documented understanding of the behavior of the reactors in the event of a loss-of-coolant accident. I emphasize that the committee's recommendations in this area deal with the need

for analyses to validate the adequacy of the reactors to respond to a major loss-of-coolant accident; we have not concluded that the reactors, as currently designed and operated, will fail to respond adequately.

2. The production reactors differ from commercial power reactors in their use of confinement systems rather than reactor containments as barriers to the release of radionuclides. A confinement system aims to control the effluents that would be generated in the event of an accident by releasing the contaminated air within the confinement structure through filters that capture some of the radionuclides. A containment system, such as that used on commercial reactors, is intended to contain substantially all of the radionuclides. The committee concludes that, in theory, the confinement approach can provide an acceptable means for mitigating the consequences of accidents. We found, however, that there are significant uncertainties about the ability of the existing production-reactor confinements to mitigate the effects of a severe accident. For example, the design and operation of the filtration systems are obviously crucial, but their effectiveness is dependent on the types, amounts, and sizes of the particles that would be generated. Research with commercial nuclear power plants, as well as studies of radionuclide release from the Savannah River fuel, suggest that some of the assumptions used in the design of the filtration systems may be unrealistic. The committee therefore recommends that the Department demonstrate that the confinement systems at the production reactors have the capability to withstand realistic accident loads and to provide acceptable attenuation of radionuclide releases in the event of a severe accident. Moreover, careful consideration should be given to the possible evolution of hydrogen in an accident and the need to assure that hydrogen deflagration does not threaten the confinement.

3. DoE, like most of the commercial nuclear industry before the mid-1970's, has focused its analysis efforts until recently on assuring that its reactors could respond to design-basis accidents -- postulated accident scenarios that are deemed to be unlikely, but credible. Consistent with the effort in the commercial industry, the committee urges that the Department consider a wider range of possible accidents. Among other possible accident scenarios, for example, the committee examined whether the production reactors were susceptible to a power excursion. The Chernobyl accident arose in part because the RBMK reactor is unstable; an increase in power in the RBMK reactor causes further increases to occur. In discussions with the contractor, the committee found that if a severe accident were to occur at Savannah River, one could imagine a subsequent set of conditions that might result in a power excursion. If an accident involving blockage of a fuel assembly followed by failure of the scram system (the reactor shutdown system) were to occur, particles of molten fuel might be swept up into the core moderator space and lead to propagation of melting and a subsequent power excursion. The committee recommends that the ongoing analyses of the plants include an examination of the risk of this accident scenario.

It must be noted in this connection, however, that this hypothetical scenario at the Savannah River reactors differs from the Chernobyl situation. The RBMK reactor at Chernobyl is inherently unstable; it is susceptible to a power excursion as a result of its design under normal operation. A similar excursion could possibly arise at the Savannah River reactors after fuel blockage, a failure to scram, and subsequent melting in particular target or fuel assemblies. The likelihood of such a set of circumstances at the Savannah River reactors is remote and, even if they were to occur, the seriousness of the problem has not yet been adequately evaluated. I emphasize these differences because I do not want the committee's comments on the possibility of a power excursion to divert attention from the more important issues that are discussed elsewhere in the committee's report.

C. Management.

This leads to the final principal issue. Although the committee focused its attention on a series of technical issues, we also examined the management system that is in place to assure safe operation. Let me first discuss DoE's relationship with its contractors and then turn to some of the committee's recommendations for changes in the current management system.

The contractors responsible for the operation of these reactors have excellent records of safe operation. Perhaps partly because of this record, we found that DoE has tended to defer to the contractors' expertise and to rely on their efforts to identify, evaluate, and resolve safety issues. The DoE staff assigned to safety oversight of the reactors is small and lacks a depth of technical experience commensurate with that of the contractors. Although the Department must allow its contractors a degree of technical discretion, the committee believes that DoE's involvement should be sufficiently comprehensive as to allow it to evaluate all aspects of the contractors' performance. The committee recommends that DoE augment the resources and talent it assigns to ensuring the safety of these reactors. Moreover, we recommend that the Department enhance its ongoing efforts to strengthen its internal safety organization (Environment, Safety and Health) so as to assure effective and comprehensive safety oversight.

In addition, we found that the safety oversight of the reactors has been ingrown and has been conducted largely outside the scrutiny of the public. Indeed, we considered whether the safety responsibilities now assigned to the Department should be transferred to the NRC or some analogous new entity created outside of the Department. We concluded that the Department can accomplish its reactor safety functions assigned to it if it dedicates itself to the task. But, in our view, an independent and aggressive oversight committee is needed to assist the Department and to build public confidence that the reactors are being operated to high safety standards. Among other features, the committee should be made up of members of recognized stature in reactor safety, should include individuals from outside the DoE community, should set its own agenda, should have thorough review authority, and should be assisted by a full-time staff.

## CONCLUSION

Our major conclusions and recommendations may be briefly summarized: While we did not determine whether the production reactors are "safe" or "unsafe," we did identify a number of important safety, technical, and management issues that should be addressed. The reactor facilities are old and are showing inevitable signs of aging. Their useful operating lives are likely to be limited regardless of any technical fixes that may be employed. Current understanding of how the N Reactor and the Savannah River reactors would behave during severe accidents is not complete and should be developed promptly. Management and safety oversight for the reactor facilities should be strengthened through more detailed review by DoE safety personnel and by establishment of an aggressive, independent oversight committee.

Many of the issues identified by our committee have already been recognized by DoE and its contractors. The Department has already taken steps to respond to some of our concerns and their willingness to do so is welcome. Our hope is that the conclusions and recommendations presented in our report will serve to bolster and sustain current efforts to ensure the safe operation of the nation's defense production reactors.

My colleagues and I will be happy to respond to your questions. Thank you.

Senator EXON. Mr. Meserve, thank you very much.

We will begin the questioning now, and so that we can move along rapidly and give everybody a chance, I'm going to start out with 5 minutes for each Senator, and we will have a second round if necessary. Given that, would you please be as brief as you can in your reply because if you take too long to answer the question, we only get one question, and there may be some follow-up questions.

Before I begin my questioning, I just want to say that when addressing these questions, Mr. Meserve, if you care to answer them or make a comment and then refer it to someone else of your panel, that will be perfectly acceptable because we want as broad-based an answer as you feel is responsive to the question.

So, I'll begin my questioning. Does your panel believe that the DOE can accomplish its reactor safety functions adequately with the establishment of an oversight board?

Mr. MESERVE. The conclusion of our committee was that DOE needs both to strengthen greatly its internal management system, and to establish an advisory committee that would provide some external input to the Secretary to guide him in decisions.

Senator EXON. Is the establishment by the Department of Energy of an external oversight committee a step in the right direction? Does it begin to meet the recommendations of your report? I use the term "begin."

Mr. MESERVE. I know the Secretary yesterday announced that the Department would be creating an external oversight board. We have not yet had the opportunity to review in detail exactly what the Department is proposing. We have listed the characteristics of such an oversight board on page 66 of our report in a recommendation. And I think that one would want to compare that range of characteristics with the oversight board that the Secretary has proposed to see how close it comes. We have not had an opportunity to do that.

Senator EXON. I take it then you are saying that it might be, but you can't establish that yet because you haven't had the time to look at it.

Mr. MESERVE. That's correct.

Senator EXON. Now, a key question, as far as this Senator is concerned is why does the National Academy of Sciences report recommend that safety oversight be advisory—I emphasize the word "advisory"—to the Secretary of Energy?

Mr. MESERVE. One has to remember that there is within the Department of Energy basically two structures. There is a structure that is the defense programs part of the Department of Energy which is responsible for the operation of these reactors. Then there is a parallel organization—the environment, safety and health organization—which has responsibility for safety oversight. We have a number of recommendations for strengthening the latter internal organization.

We felt that it would be helpful to the Department to have an external oversight board for several reasons. The system has become somewhat ingrown at the Department of Energy and having people on an external advisory board who have experience outside the DOE community could be extraordinarily helpful to the Department. There's a wide range of knowledge, for example, that now exists in the commercial sector.

I might also add—and I should emphasize—that we envisioned this advisory board would operate, to the extent possible, in the public. It was our thought that the operation of such a board would be helpful in restoring public confidence that, in fact, these reactors are being operated safely.

Senator EXON. I believe my time is about up. I'll save one or two more for the second round.

Senator Thurmond.

Senator THURMOND. Thank you, Mr. Chairman.

Mr. Meserve, were DOE and Du Pont cooperative in supplying information to the NAS for the study of the Savannah River reactors?

Mr. MESERVE. Yes, they were, Senator. Our report includes a 50-page bibliography which, for the most part, reflects information that was provided to us by the Department and by the contractors.

Senator THURMOND. Mr. Meserve, I understand that your study recommended establishment of an independent, external review oversight committee that would be advisory to the Secretary of Energy. What advantages and disadvantages did you find between an advisory oversight function and a binding or regulatory oversight function for the Department of Energy reactors?

Mr. MESERVE. We attempted to suggest a structure that would be a minimal perturbation on the existing system, but which would greatly strengthen it. We were very encouraged in our review by the fact the Department has made very significant gains over the last year and a half or so, starting before Chernobyl, in strengthening its internal regulatory function—that is, the part of the Department that is managed by the Assistant Secretary for Environment, Safety and Health. We felt that the creation of an advisory structure would serve to enhance and strengthen that internal organization.

If, in fact, over time one were to conclude that this were inadequate, then it might be appropriate—and we hold open the possibility—to undertake more radical measures.

Senator THURMOND. Mr. Meserve, does your study endorse the legitimacy of making nuclear safety decisions based on cost benefit analyses guided by appropriate standards of acceptable risk?

Mr. MESERVE. I think that it's implicit in the whole methodology that one has to consider acceptable risk in the regulation of nearly any technology, Senator.

Senator THURMOND. Mr. Meserve, is it your judgment that any nuclear safety board established by the Congress should make nuclear safety recommendations based on cost benefit analysis guided by appropriate standards of acceptable risk?

Mr. MESERVE. The committee did not reach any conclusion on that point, and that precise question wasn't presented. But I think if I were to go back to the committee, they would agree with that proposition.

Senator THURMOND. Now, as I understand what you are recommending, and as concerns this particular bill before us, there should be an outside board completely independent that would make the recommendations and advise the Secretary on these matters.

Mr. MESERVE. That is correct.

Senator THURMOND. And then as a Cabinet member, it's his responsibility from then on. Is that correct?

Mr. MESERVE. I would expect, Senator, that if this advisory board were to operate, as I anticipate it would and as we recommend, in the public view, there would be information that it would create available to the Congress and to the President. That would no doubt have some influence on the Secretary's decisions in appropriate cases. But our intention is that the committee would be advisory to the Secretary.

Senator THURMOND. But it would be an independent board and not bound to work for the Secretary and do what he wants.

Mr. MESERVE. That's correct.

Senator THURMOND. Completely independent.

Mr. MERSERVE. That's correct.

Senator THURMOND. Now, of course, if you had another agency like the EPA that is in conflict with the Secretary of Energy, then that might be a matter that would have to go to the President. But under your recommendation, the Secretary of Energy is responsible and he would have the benefit of an outside advisory board that is completely independent that would make recommendations to him.

Mr. MESERVE. That's correct.

Senator THURMOND. That's all, Mr. Chairman. Thank You.

Senator EXON. Just a followup on that so we make it clear. This independent board would advise the Secretary in public, which I think is good. And if it is an independent board, and if it releases its findings in public, it would put some heat on the Secretary, whoever that is at an appropriate time. But this board would not in any way report to higher authority than the Secretary, including the President of the United States. Is that right?

Mr. MESERVE. Our recommendation is that an advisory board be established that is advisory to the Secretary.

Senator EXON. The Secretary only.

Mr. MESERVE. That's correct.

Senator EXON. Thank you very much.

Senator Glenn.

Senator GLENN. Thank you, Mr. Chairman.

Did the committee furnish you a copy of S. 1085?

Mr. MESERVE. There are several bills that the committee did have available to it. We did not study any of the legislation, including the legislation that is now before this subcommittee, in detail. I cannot comment on any of the precise provisions.

Senator GLENN. OK. I think that's a good point because I tried to call Dr. Meserve this morning to discuss this. He had left his office. I wound up talking to Dr. Frank Press who heads NAS, and we discussed this. And I wrote them down and I read this back to him to make certain I wasn't going to be misquoting at the hearing this morning, and he agreed with the following.

He says he is familiar with S. 1085. He thinks it's a good concept, but the study of this committee was on safety and did not really study all the options for implementations and what the Secretary should or should not do once he gets this information. He says S. 1085 is absolutely in harmony with the report. The committee did not deal with the balance of requirements for production with safety. In fact, you mentioned that in your report. And that's what this whole bill is all about. And so, this committee did not really deal with that.

He further said that it is up to Congress and the administration to make that balance between review and production and how it is managed. The committee did not look into that and he does not disagree with S. 1085. They just didn't look into it.

I read that back to him just like that this morning so that he could hear it.

Now, you headed the committee. Do you agree with that basically?

Mr. MESERVE. It is completely accurate and true—and I tried to emphasize in my opening remarks—that our focus was solely on the safety side of the equation. And it is clear to me that in making decisions as to continued operation of these plants that one would have to balance the risks associated with operation against the need for the materials. The focus of our concern was on the safety side of that equation, and we did not—it was not within our charter—to look at the need for the materials.

Senator GLENN. Now, let me just take one second here to say I think this is excellent. You people did an outstanding job. I read through this word-for-word last night. Some of it got a little tedious where you were into some of the technical aspects of this.

Mr. MESERVE. I apologize for that, Senator.

Senator GLENN. No. That's quite all right. You did an excellent job. And I just wish every member of the committee could read through this thing. Some of the things that they put in here after their analysis of it and their analysis of what DOE has done—they start off on the second page. "However, the committee finds the Department has failed to specify its safety requirements clearly, has failed to apply them uniformly at the two production reactor sites, and has failed to implement them in a timely manner." There are other examples like that.

They say their management has not been right. It has been very, very poor. The committee concludes that the Department's safety oversight of the production reactors is ingrown, largely outside the scrutiny of the public. That's important because we are depending on public—if we go just with no S. 1085, all we are depending on is the public pressure to make sure that these safety concerns are addressed, and yet much of this is internal, outside the scrutiny of the public.

"Weaknesses in management of the defense production reactors have led to a loose-knit system of largely self-regulated contractors operating within budgetary constraints composed by and on the Department," and so on with other examples like this through the whole report which are absolutely in keeping with my experience over the last 5½ years of looking into this on a detailed basis, starting back home with Fernald in Ohio.

Let me ask something here. What do you think will be done if the advisory group thinks that there may be something so important, and accident may happen? We may have a budding accident. It may be Savannah River. Cracks in the reactors which we already have there. Operating at low power. But say DOE decides, we're going back up to high power. The advisory group says, no, you shouldn't. They say, yes, we are. And they go back up to high power. In other words, they ignore the advisory group. What action can be taken if you think an accident is going to happen, you report that to the Secretary of Energy and he refuses to do anything about it based on production requirements? What happens then?

Mr. **Meserve**. Well, I think we all have to speculate as to what would happen in that circumstance. That precise scenario is not one that the committee evaluated. And you perhaps, sir, are in as good a position to judge the pressures that would be on the Secretary in such a circumstance as I. It seems to me that it would be highly unlikely that the Secretary would not stand down reactors if an advisory committee were to come to him and tell him that he had an immediate safety problem.

Senator **Glenn**. Well, he might or he might not. We have seen very unsafe practices out of DOE, as you point out in your report. You are saying in your report that there are unsafe practices that have to be dealt with.

That has been done with the present Secretary of Energy and his predecessors. It has been done even though they had some advice from their own people on occasion that some of these things were building up. And they have ignored some of them.

If we are depending on public opinion also to bring this around, then what happens when the production requirements are classified? They are secret; the public doesn't know. There won't be any public opinion on that because there can't be if we are going to keep these things secret unless we lay our whole nuclear process open to the whole public. And I don't think we want to do that.

The reason we designed this the way we did—let me give a scenario here. We are in arms control negotiations right now. We are going to give up some INF weapons. But the nuclear warheads are not going to be part of this. They won't be destroyed. They are brought out.

Now, the Secretary of State is negotiating that. DOE may not even be fully aware of what is going on, all the intricacies of this negotiation as it finally occurs. And yet, our biggest source of fissile material is out of old weapons, and so that affects production. Now, the Secretary of Energy may be thinking he has to produce something here, and maybe his goals haven't been altered yet. In other words, there are all sorts of scenarios here where DOE is only one of the players.

My point with S. 1085 is there is only one spot in the whole Nation where the requirements for production and the requirements for safety, come together at one spot with all the information of DOE, the State Department, the CIA and others and that's at the White House. I think that 95, 98 percent of the differences between the safety board and the Secretary of Energy will be taken care of and taken care of expeditiously because no Secretary of Energy wants to operate an unsafe system. But in those few instances where there would be a difference, then what I provide is that this would get bucked to the President for his decision because only he has all the facts from all the elements of Government. And thus, the important difference here.

Senator Thurmond spoke about the difference between the advisory and the regulatory approach. S. 1085 is not a regulatory approach. I have repeated that over and over in these hearings. S. 1085 just says if there is a difference that cannot be resolved and the advisory board says it's that important, and it feels strongly about it, and the Secretary of Energy refuses to act, in that rare instance it gets bucked for a final decision of the President because only he has all the information. And that's all we do with this. So, it's not a regulatory approach. This advisory board, as I see it, could not close down anything. All it could do is require that it be bucked up to the next step.

My time it up.

Senator EXON. Senator Cohen, you are recognized for 8 minutes in the interest of fairness.

Senator COHEN. Mr. Chairman, anyone who has read through that entire report deserves at least another 5 minutes of my time. If you want to continue——

Senator GLENN. No, go ahead. We're doing fine. I'll get back to it.

Senator COHEN. Well, I have several questions that come to mind. On the one hand, you focus upon the safety factors involved in the production of nuclear materials for the operation of these plants. On the other hand, you say that the ultimate decision is a political one in essence. It has to be made by Congress, the policymakers, in terms of what the tradeoff is between the need for the special nuclear materials and the safety features themselves. Right?

Mr. **Meserve**. Perhaps not necessarily solely by Congress. But I think that in any decision there has to be a balancing of the cost and benefits, and that somebody has to do that balancing.

Senator **Cohen**. At what point would you make a decision that the safety features involved or the lack of safety, I should say, is so compelling that it is not a decision that should be made between need versus the safety issue? In other words, you have sort of said we've got some problems, but here, you make the decision. We are not really either charged with doing that or maybe not competent to do that.

And the question I would have is at what point on the scale, on the Richter scale of safety, would you come to this group or any congressional or White House group and say the safety inadequacies are so severe that it is not a question of policy at this point. It's a question of survivability.

Mr. **Meserve**. Senator, it's a very difficult question to answer. It seems to me that nearly everything one does in life has some risk associated with it: flying an airplane, driving a car, eating a peanut. All those things have risks associated with them, and in deciding whether to undertake them, one has to trade off the benefits associated with the activity, with the risks. But there is one side of this equation which we have no capacity to judge.

The committee did not examine the reactors with the mind-set of regulators. For the most part the committee was made up of people who are experts in the technology. It is very hard for us to put on regulatory blinders.

Senator **Cohen**. Is there any point along a scale on which you would say we are getting above what our needs for the production of nuclear weapons are, that the safety inadequacies are so severe that we are telling you they ought to be shut down.

Mr. **Meserve**. What I would hope would happen is that the Secretary would establish some clear-cut criteria in advance—mandatory qualifications on the nature of the equipment, the performance that is required, and standards for operation—that would guide him in making that decision. And that if you step over the line, then it would be appropriate to take some action. It might be a temporary stand-down. It might be a permanent stand-down.

Senator **Cohen**. I guess I'm not phrasing it correctly. What I really want to know is with your group of scientists and experts and expertise, is there any point in your mind or collective assessment that no matter what the policy needs are in terms of we need to produce *x* number of materials for the D-5 and the Mark 4 and the Mark.5 and the D-5—forgetting all of that, just looking at the operation of these several plants, is there any point that you could come to the conclusion saying these simply aren't safe to operate?

Mr. **Meserve**. We, in fact, did come to that conclusion at one juncture in our analysis. We looked at the Savannah River plants and had concerns that the Savannah River plants were operating at power levels such that there was not adequate assurance that the system would survive a loss-of-coolant accident. We notified the Secretary of that circumstance immediately, and he promptly reduced the power levels.

Now, it is very difficult for me to set out the standard that we applied in precise terms. The power-level situation seemed to us to be sufficiently far from acceptable practice as to require us to make an immediate notification to the Secretary rather than awaiting publication months later of our report.

Senator COHEN. But at that point you didn't inquire as to how much special nuclear material was needed to produce *x* number of weapons?

Mr. MESERVE. No.

Senator COHEN. And you came to a judgment saying it is unsafe at any speed or any amount at this point?

Mr. MESERVE. We didn't tell him to shut down. We didn't tell him to reduce the power operating limits. We told him that he had a circumstance that he needed to address, and he did address it by reducing the power levels.

Senator COHEN. When you refer to serious accidents, are you referring, for example, to earthquakes, potential earthquakes?

Mr. MESERVE. We didn't look at that issue precisely. That is not an issue that is addressed in our report.

Dana, do you want to comment on the earthquake situation?

Mr. POWERS. The severe accidents we speak of could be initiated by a variety of different mechanisms, defects in the plants, or earthquakes, or other external events, tornadoes or fires. Though an earthquake need not have initiated an accident, it certainly could have, and those types of accidents that might be initiated with an earthquake are among our concerns we expressed in the severe accident issue.

Senator COHEN. That's a sensitive point with me because I recall some years ago the NRC proposed shutting down Maine Yankee because of potential of problems or defects with some of the piping and so forth if there were an earthquake. And I went over to the House side. I breached the gulf, and went back to my roots on the House side. And I said this is nonsense. We have never had an earthquake in Maine. And about 10 days later we had a major earthquake in Maine, and then we had a second one almost within a month after that time. So, it sensitized me to the fact that even though it might seem remote, nonetheless it has to be taken into account.

The final point, Mr. Chairman, is you talked about the gap. Well, I guess you didn't talk about the gap, but you said the facilities are aging now at such a rate that we have got to take action to either totally retrofit these I assume or start the construction of new plants in order to continue to satisfy the need to produce these special nuclear materials.

What is the gap that you foresee—if we do nothing for a year or two, what's the gap going to be between the aging process and the need for the new facilities?

Mr. MESERVE. Unfortunately, Senator, this is one of these issues that does not lend itself to precise scientific analysis. At the N reactor the graphite is expanding and the Secretary has said that the N reactor will have to be shut down some time in the early to mid-1990s as a result of the expansion of graphite.

The cracking problem that we discussed at the Savannah River plants is something that does not lend itself to precise prediction. One knows as a result of the physical and chemical environment in which those reactors operate that cracks are going to occur. They may occur sooner. They may occur later. It is hard to tell. It was our conclusion that, having seen the cracks in one reactor and, as a result having that reactor retired, one should anticipate that these problems are going to occur with the other reactors. The problem is the uncertainty.

We are in a situation where the Congress will be confronted with a dilemma, once the cracks are detected in the reactor tanks, as they will eventually, of either foregoing the materials that these reactors produce or operating them in circumstances in which their safety could be compromised. And it's in order to avoid that dilemma that we urge action now because it is going to take time to build a replacement.

Senator COHEN. Thank you, Mr. Chairman.

Senator EXON. Let me take just a moment to respond to the line of good questions and the statements by Senator Glenn.

First, I think all on the committee have no quarrel whatsoever with the goal of Senator Glenn's bill and other bills that are addressing this matter. We applaud their goal. We have noted with interest the leadership that Senator Glenn has been providing in this area for a long, long time.

I guess that the main difference that some of us have is not with the thrust, not with the goals, but his method, as outlined in his bill. We are not totally in sympathy with its approach to solve the problem. There is no question but what there have been deep difficulties with the safety administration of this program for a long, long time. That is adequately spelled out in your report.

We think it is an excellent report, and we join him in applauding it. Not only do I like the report, I like its conclusions. So, I am in total agreement with the positions that you have taken.

Mr. Meserve, your report was critical of DOE's management role noting that in many instances, there is an imbalance in technical capabilities and experience between the contractors and the DOE staff. To what extent is this a function of the Government pay caps on the salaries of the experienced technical experts? How can DOE attract and keep the kind of talent necessary to audit contractor operations? Or do we have to rely much more heavily on visiting teams, such as an outside board and perhaps a centralized DOE audit team?

Mr. MESERVE. That is not an issue that the committee addressed, Senator. I know that the environment, safety and health organization in the Department of Energy, perhaps in recognition of the thin nature of its full-time staff, has relied on consultants to assist it in fulfilling its work. We have reviewed some of those consultants' reports and found them to be well done.

But I think that the question as to how the Department could best strengthen its manpower is a question that might be best addressed to the Department. They confront the problem and know the difficulties in attracting people. It's not an issue the committee addressed.

Senator EXON. Your report focuses on, as I understand it, severe accident possibilities and not on every possible event of a relatively minor adverse consequence that could occur at a nuclear facility.

How did you determine the scope of your recommendations? What should be the scope of the oversight board's mandate in your view?

Mr. MESERVE. That's a key feature of our recommendations. We foresee a committee that would be a committee of recognized stature that would have the capacity to set its own agenda. We think it is important that this be a committee that has expertise and judgment. Basically the committee would use the skills it has developed to probe the Department in any area that it feels is appropriate in order to explore safety issues.

Senator EXON. Can you give us any guidance at all on how large a staff would you think would be necessary for this support oversight committee?

Mr. MESERVE. I am very reluctant to do that. It is not a question that the committee addressed. I think a significant enhancement of the existing staff is necessary, but I'm really not prepared to give you any numbers.

Senator EXON. If we——

Mr. MESERVE. Excuse me. Did you say oversight committee, sir?

Senator EXON. Yes.

Mr. MESERVE. Perhaps one of the other members may have some familiarity with this.

Senator EXON. Even though it wasn't covered in your report, I know it is going a little bit beyond it. But if we look forward, we don't think there is any question that we are going to do something like this. And we would just like to get your preliminary view. And I would simply say if it is not convenient to give us a recommendation of any specificity right now, if you want to think about it and give us your own individual ideas, it might be helpful as we proceed.

Mr. TODREAS. Yes. All I might say is I'm somewhat familiar with the ACRS which probably has a staff of several, maybe two to three multiples of the number of members. I would hope the staff for this committee could probably work with less of a multiple than that.

Senator EXON. The smaller and more efficient, the better. Is that what you are saying?

Mr. TODREAS. Yes, sir.

Senator EXON. Thank you very much.

My time is up. I am pleased to recognize Senator Thurmond.

Senator THURMOND. Thank you very much, Mr. Chairman.

Mr. Meserve, you seem to characterize DOE's actions as a glass half full, whereas Senator Glenn characterizes it as half empty. I just wondered if you are more positive than Senator Glenn on the willingness of DOE to accept outside safety advice and are there examples to underscore the willingness of DOE to take safety advice?

Mr. MESERVE. Well, Senator, I know that the Secretary announced yesterday that he was going to establish some sort of a——

Senator THURMOND. Speak a little louder.

Mr. MESERVE [continuing]. Advisory committee.

Senator THURMOND. Speak a little louder.

Mr. MESERVE. And certainly the creation of this committee, the creation of outside groups that have examined the N reactor would suggest that the Secretary has been looking for some outside advice with regard to these reactors even though much of that advice has been critical of the Department.

Senator THURMOND. That's the only question I have, Mr. Chairman.

Mr. MESERVE. I might add, Senator, I am sure it is the case that both Senator Glenn and I want to have a full glass with regard to safety.

Senator THURMOND. What is that?

Senator GLENN. Absolutely. Safety is not a halfway affair. You do the best you can. And as you pointed out earlier, nothing is going to be absolutely safe from the time you get out of bed in the morning, and even that isn't completely safe. So, I agree with you on that.

But let me address what Senator Thurmond brings up about the willingness of DOE to take advice from outside. I have here—just happen to have with me—21 GAO reports going back to 1979. Just the titles of these things—I'll start with one back in 1979 about decommissioning the Hanford reactor, but then the next one, Department of Energy Safety and Health Program for Enrichment Plant Workers is Not Adequately Implemented; next report, GAO's Analysis of Alleged Health and Safety Violations at the Navy's Power Training Unit at Windsor, CT; next one, Better Oversight Needed for Safety and Health Activities at DOE's Nuclear Facilities; up to 1981 now, Congress Should Increase Financial Protection of the Public from Accidents at DOE Nuclear Operations; next one in 1982, GAO's Response to DOE Better Oversight Needed for Safety and Health Activities at DOE's Nuclear Facilities. I won't read the rest of these, but they go on and on. I have 21 reports that we have consistently brought to DOE's attention, and they have done little or nothing about them.

Now, I think finally in the last couple of years, we do have their attention. I think they are a little more sensitized to this now. They put the ES&H section in over there, and I complimented them for that. We have had Mary Walker who heads that up, testify several times. I think she is trying hard.

But I come back to my original statement, when the DOE is not willing to take advice, which obviously they have not—had they acted on all of these things going clear back to 1979, we might not be in the position that we are in right now. But we have pushed and pushed and pushed, and I would repeat that I just don't see what happens where DOE ignores advice and then there is no recourse. And that's what S. 1085 tries to address is that type situation.

Let me ask one question. I want the record to be clear on this. In your opinion would it be inconsistent with the recommendations you make I believe on page 66—your advisory committee. Would it be inconsistent with your recommendations to require that a refusal by the Secretary to follow your safety oversight committee's recommendations would result in final adjudication by the President? Would that be inconsistent with what you want?

Mr. **Meserve**. That's certainly not a matter that the committee considered. I really can't——

Senator **Thurmond**. I can't hear you.

Mr. **Meserve**. It's not a matter that the committee considered. I think that our deliberations were such that we thought that the——

Senator **Glenn**. No. Would it be inconsistent with what you did recommend? You did make the recommendations. What I am proposing is where they come at loggerheads and something is not being done, I would presume it would not be inconsistent to say this gets bucked up to the President for his decision. That wouldn't be inconsistent with your proposal, would it?

Mr. **Meserve**. I don't think it is completely inconsistent with the proposal. It is not an element of our recommendation because we felt that the pressures on the Secretary would be such that effectively it would be impossible for him to ignore an oversight committee that came in and told him about a pressing safety need. But you have envisioned a different circumstance. If you really think that it is a realistic prospect, there might be a need to escalate——

Senator **Glenn**. Well, I think it is——

Mr. **Meserve** [continuing]. The problem. I can see that.

Senator **Glenn** [continuing]. Because as you point out in your report here, some of this is out of view of the public. It is classified. And I think that was a good point to make in here because that has been part of our problem. The whole DOE complex has been classified. It hasn't been something that got daily attention in the press. It is not something that even in a situation now, if we have a vital matter—we are negotiating, say, with the Soviets—we may not want to point out a certain weakness by highlighting it in public. What do we do then because there won't be any public pressure on a particular item? And the only person that has all of the information is the President.

So, as I read it, what I am proposing would not be inconsistent. I would just go a step further than you go here.

Mr. **Meserve**. Senator, I think it should be noted in our report that we acknowledge that if the advisory committee that we propose were not to prove effective in improving safety, one could come back and revisit this issue again and take a much more radical measure. And we acknowledge that is something that one should consider.

Senator **Glenn**. I am going that step right now I guess because——

Mr. **Meserve** I think that's right.

Senator **Glenn** [continuing]. Mainly because we have seen such reluctance on behalf of DOE to take action on a whole host of things through all these 21 reports here that I have from GAO going clear back to 1979. We have seen little or no action until we really started pushing hard on this a couple of years ago and they established ES&H, as I've mentioned. So, I just think that we have to realize that there may not be a willingness to act every time on the advisory board's recommendations. And most of these things I realize—95 or more percent of them probably can be worked out OK between the advisory board and DOE.

But in those rare instances where you think we may well be into a meltdown situation if something isn't done, and if production goals are taking precedent, then it seems to me that should be a Presidential decision. It is that important. And that's all I try to provide with this.

Just one other comment. Would you be willing—after you have had a chance to look at S. 1085, would you look at it and then give us a letter back to the committee on your opinion of it and whether it carries out the goals that you wanted to set for this? Would you write a letter to the committee after you have examined S. 1085, inform us as to whether the Nuclear Safety Board, as we call it in S. 1085, meets the criteria that you outlined on page 66 of your report for a nuclear safety oversight committee? Would you be willing to do that?

Mr. **Meserve**. We would be happy to, Senator. I just want to point out one of the difficulties we have with a highly competent committee in the area of nuclear safety. It is hard to assemble them at one time in order to reach a collective judgment. We would be happy to do that, but it may take a meeting of the committee to discuss your bill fully.

Senator **Glenn**. In lieu of the committee, would you give me your personal opinion in a letter then?

Mr. **Meserve**. I would be happy to, but it would be solely my personal opinion. And I think it might be helpful to you to have a reflected judgment.

Senator **Glenn**. I'd be glad to have your personal opinion, and I would invite the other people here to give me individual letters also. I know it may be difficult to convene the whole board, but I would appreciate a letter from each one of you on this after you have had a chance to look at S. 1085 and tell me if it is in harmony with what your goals were in light of the situation where there might be a loggerhead situation.

My time is up.

[The information follows:]

NATIONAL RESEARCH COUNCIL
2101 Constitution Avenue Washington, D.C. 20418

COMMISSION ON PHYSICAL SCIENCES, MATHEMATICS, AND RESOURCES

COMMISSION ON ENGINEERING AND TECHNICAL SYSTEMS

COMMITTEE TO ASSESS SAFETY AND
TECHNICAL ISSUES AT DOE REACTORS

November 11, 1987

The Honorable John Glenn
Chairman
Governmental Affairs Committee
SD-340 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Senator Glenn:

When we testified on October 30 before the Armed Services Subcommittee on Strategic Forces on behalf of the National Research Council Committee to Assess Safety and Technical Issues at DOE Reactors, you asked that we elaborate on our remarks concerning oversight of DOE's safety management of its production facilities. We agree with you that this is one of the most important needs identified in our review.

In recommending that a new entity be created to oversee DOE's performance, our committee specified three criteria. First, the oversight panel or board should be advisory to the Secretary of Energy. Second, it should be composed of experts in nuclear safety. And third, the panel's independence should be ensured by the inclusion of members whose experience has been gained outside the DOE/contractor community; by authority to allocate its own budget, hire staff, and set its own agenda; and by a mandate to make its reports public to the extent possible.

Our committee was not charged with assessing the reactors' safety in relation to production needs. We did not, therefore, recommend a procedure for resolving such conflicts should they arise, nor did we consider procedures such as those embodied in your proposal.

We hope that this elaboration on our testimony answers your questions concerning the committee's recommendation.

Sincerely,

Richard A. Meserve

Neil Todreas
Neil Todreas

Dana A. Powers
Dana A. Powers

cc: The Honorable J. James Exon

*The National Research Council is the principal operating agency of the National Academy of Sciences and the National Academy of Engineering to serve government and other organizations*

Senator **Exon**. You get the impression, gentlemen, that Senator Glenn doesn't give up very easily. I would be extremely surprised if you would change your mind individually or collectively. But everybody has that right.

Just once again I would emphasize so there is a clear understanding, I think we all agree on the importance of safety. And I guess some of us feel that your recommendation in the report for an advisory board is what you meant to say. If you want to change your mind individually or collectively, you have every right to do that. But if you do something like that, would you be good enough to send notice to the committee. If you change your mind, we will want to know about it. We happen to share the goals and concerns of Senator Glenn, but we wonder whether or not you haven't best outlined the way to do that herein.

Senator **Glenn**. Would the Senator yield?

Senator **Exon**. Yes, I'd be happy to, Senator.

Senator **Glenn**. I don't want to disagree with my chairman here, but I don't disagree with your report. I don't disagree with the advisory board. I just say when the advisory board, as you have it outlined right here—when they come up against a situation, which is bound to occur, where the DOE does not take immediate action on it, and you think it is important, then what happens? And you are in a situation where you can't go public because it is classified. We may be in arms control negotiations or whatever. Then who decides? You sit and stew and talk to each other and say, they are not doing what we think is important. And DOE up there sits, as they have for the last 9 years, through all these reports and says for whatever reason, we don't think we are going to take action on this. Then what happens?

And I don't disagree with what my chairman said at all. I don't disagree with your report. I think this is the best report I've seen in a long, long time. I really do. But what happens when you reach the situation where you are at loggerheads and nothing happens, and you think it is important? All I do is go to the next step. That is not disagreeing with you. That is trying to implement what you are trying to do. That's my point.

Thank you.

Senator **Exon**. It's a matter of implementation. That's exactly right. I just would say once again that I agree completely with the report as it is, including what I understand your recommendations to be with regard to the advisory board.

Senator Thurmond.

Senator **Thurmond**. I might just say this. Before you made this inspection, there was not an outside advisory board to the Secretary, was there?

Mr. **Meserve**. That's correct, Senator.

Senator **Thurmond**. In other words, what you are doing, you are coming in and saying, Mr. Secretary of Energy, we think you ought to have an advisory board, an independent advisory board. It is not obligated to you to make these inspections and make recommendations. Is that what you——

Mr. **Meserve**. That's correct. We envision an independent advisory board.

Senator THURMOND. And that's something they have not had in the past.

Mr. MESERVE. That's correct.

Senator THURMOND. And if an independent advisory board comes in and makes public recommendations, don't you think there is going to be heat on the Secretary to implement those recommendations or explain to the public why?

Mr. MESERVE. I think they would. I think you are correct, Senator.

Senator THURMOND. Thank you very much.

Senator EXON. Gentlemen, thank you very much. It has been a very informative meeting.

Senator GLENN. Mr. Chairman, could I just say one other thing?

Senator EXON. Senator Glenn wants the last word. The chairman will decide whether he has it or not after he speaks.

Senator GLENN. I am subject to that, I understand.

I just wanted to point out one thing. As Dr. Press pointed out to me this morning, and as these gentlemen have said, when it came to the implementation end of this and all the options, they did not go into that in depth. They said that earlier. And Dr. Press said that when I talked to him on the phone this morning. That was not their mission with this committee. This committee's mission was to look at the safety and say what should be done with regard to the organization and what the status of things was.

As I understand it, you did not look into all options and permutations that might occur as far as carrying that out. You have the advisory committee and that's it. But you did not explore all the other options. And all I'm trying to do is lay out that there is an option I think that is better.

Is that a correct and fair statement?

Mr. MESERVE. We attempted to consider other options. We mentioned some others that were possible in our report. I cannot claim that we have considered all possible options, nor certainly can I claim that our committee is omniscient on matters of government organization. We have a recommendation that we thought was a sensible and appropriate step. If it doesn't work, then there would be other things that might be appropriate to do.

Senator GLENN. Mr. Chairman, I thank you for your forbearance here during this.

Senator EXON. Well, just let me ask one more question to refocus it. I keep coming back to this. It seems to me that your report is replete—replete, whether you focused on it or not, as Senator Glenn is trying to put out, that you felt that the board, commission, call it what you would, should be advisory only. Is that correct?

Mr. MESERVE. That's correct.

Senator EXON. Thank you. The report speaks for itself.

We thank you for your kind efforts, and you are excused.

Dr. Tape, we would like to have you come to the witness chair now. Thank you very much for joining us this morning, Dr. Tape. You bring with you a wealth of experience in commercial and international as well as defense nuclear programs. You have served on the Atomic Energy Commission, the International Atomic Agency, and on the Roddis panel. We welcome your considered judgment on the most appropriate safety oversight mechanisms for the Department of Energy.

I believe the recommendations in your prepared testimony are consistent with both those of the National Research Council, from which we have just heard, and with those of previous witnesses. You recommend the creation of an external advisory group reporting to the Secretary of Energy modeled after the Advisory Committee on Reactor Safeguards which reports to the Nuclear Regulatory Commission.

I am pleased to have you share your years of accumulated experience with us today as we work to strengthen the existing safety oversight mechanism of DOE's national security facilities.

We would like to ask you to continue right now and give us any information that you care to. Without objection, your prepared statement is accepted in full and is entered into the record herewith.

Dr. TAPE. Thank you, Mr. Chairman. I do not propose to read my testimony since you will have it in the record.

Senator EXON. Dr. Tape, could I interrupt you just a moment? Senator Thurmond has a brief opening statement that he would like to make if that's all right.

Senator THURMOND. Thank you, Mr. Chairman.

I just want to extend my personal gratitude to Dr. Tape for agreeing to appear before the committee this morning. Dr. Tape, your credentials in the important area of nuclear safety are without question and we will value your testimony this morning.

I think it has been very clear during the previous hearings in consideration of S. 1085 that there is no disagreement about the objectives of Senator Glenn's bill. I believe every member of this committee wants to give safety concerns greater emphasis and visibility. And we are agreed upon the need for the creation of an independent nuclear safety board. Where we differ is the mechanisms proposed. And as I read your prepared statement, you also take issue with the mechanisms established in the proposed legislation.

Mr. Chairman, I look for elaboration of these views and to the round of questions.

Senator EXON. Senator Glenn, do you have any opening statements?

Senator GLENN. No, I do not.

Senator EXON. Thank you very much.

Please proceed, Dr. Tape.

## STATEMENT OF DR. GERALD F. TAPE, CONSULTANT, WASHINGTON, DC

Dr. TAPE. Thank you. As I started to state, I do not propose to read the testimony at this time. I have listened to the questions, answers and discussion of the last hour or so, and I think perhaps the important thing here is to give you a little background on where I come out and the rationale that led me to my recommendations.

First, let me state that I have had no connection with the National Research Council committee. I have not worked with them. I have not even had a report that I could look at in detail. I had the opportunity yesterday of borrowing one from a colleague, and I was able to thumb through it quickly. So, I have a little bit of the flavor, but I do not have that report. I can't talk to it specifically. I wish just to simply talk about some of my views on Title I of S. 1085.

I did, however, serve, as was said, as one of the expert consultants to the Secretary of Energy on N reactor safety, and we consultants submitted reports to the Secretary just about a year ago this time. So, some of my comments are based on experience that was derived from the period that we looked at the N reactor.

First of all, I endorse everyone's statement that the objectives that we are seeking are all the same. And the issue is basically one of implementation, how does one achieve them.

I perhaps come at it in a somewhat different way in the following sense, that I personally believe that the real safety, the true safety, must reside at the operating level and at the design level in the first instance for whatever facility. And so, I have, through the years, tried to stress those actions which strengthen the operations level.

For older facilities I recognize that one has to have periodic design reviews. Acceptance of a particular situation 25 years ago may not be the same today. We have got better techniques for analysis, and we must utilize them.

The other point I would make is that I would like to see, and I have urged it through the years, a more cooperative role between the operator and the regulator. Too many times the regulator is operating in his own little environment and he must protect himself. In general, by protecting himself from various decisions, he goes overboard, that is, beyond what might be the most practical approach. On the other hand, if the parties can come together quickly and in a flexible mode and understand each other's position as to why the various points are taken, there can often be a reconciliation at a lower level very, very rapidly. And so, I tend to emphasize cooperation, flexibility and not as much of the arm's length dealing as tends to develop when one has a pure regulatory and operation type system.

One other point I would emphasize is the question of risk. We keep asking, "Is it safe?" We have noted that safety is a relative thing. Safe as compared to what? And so, basically we have to get into the question of risks. One must consider personal risk, and personal risk can be of two kinds: one to the public, one to the operator, the employee, the worker. And then there's societal risk. And basically that is what one has in this issue of defense materials production. At what point does one accept a bit more risk in the operation of a defense oriented operation as contrasted with, say, something in the public sector?

One of the Roddis panel members said if the N reactor is being operated for electricity production only, there are other ways of producing electricity, and we don't necessarily have to continue operating N. If we are operating it for defense production purposes, then a decision must be made that that defense material is required, and the risk is acceptable. So, there are these different points of view.

I have already emphasized that when a safety issue arises, I would like to see it addressed quickly with the best technical advice available. I think here the Department of Energy has made a strong move in strengthening the Environment, Health and Safety operation. And I point out that that group, its round of inspections of the various reactor facilities and nuclear facilities, which have been under way now for some time, has employed an extensive group of outside consultants on their inspection teams. I happen to be acquainted with some of those who served on the N reactor review teams, and I know them from past history and have great trust in their work.

One other point which has come up in the discussion today. For example, one of the recommendations in my report to the Secretary on the N reactor was to make an immediate decision that they were not going to try to rebuild the N reactor in order to operate into the next century. For a while that was a possibility, an option. But I think all of us felt that that was just the wrong way to go, and the only way to put that to bed was to make a positive decision that we are not going to do it. The Congress helped the Secretary on that issue. So, you can say that one has been put to bed.

We did not at that time identify any one particular issue that was so serious that we said that the N reactor should be shut down. But there was a long list of things that the ES&H teams identified, things that would be improvements to safety. Some were validations, which you heard about in the NRC report. Although they were looked at at one time, they ought to be looked at again. And so, there is that ongoing effort. And the list of something like over 200 recommendations ranged from the very minor to the somewhat major, but none of them in what one might call a life-threatening mode.

One of the recommendations to the Secretary, as you have already indicated, was to make greater use of external peer review groups to address reactor safety on a continuing basis. In my view what happened with the expert consultants group, with what you have heard today from the National Research Council, I consider as ad hoc measures. And this is the time when they should be institutionalized. And by institutionalized, I mean this external review type committee advising the Secretary, and then from there the Secretary makes his decisions. And I would like to emphasize at this point when, I say to the Secretary, I mean to the Secretary, not to the Deputy, not to the Under Secretary, but to the Secretary. I want it at the highest level in the organization.

We have talked about aging, and I don't think I really have to go into that except to say that I'm already on record as saying that we should build at least one new production reactor and get off the dime and get on with it.

The question of gaps to me is academic. I think no matter how fast we move with new construction, there will still be some gaps that we will worry about. So, the only way in my insurance package is to move in that area.

Now, I did also recommend to the Secretary in my report that I thought the system—the operations within the Department were long, drawn-out, clumsy and in many cases took too much time to arrive at decisions. I think some of the comments that you will find in the academy report from what I've been hearing today would emphasize that the structure and the organization and the capabilities do need upgrading.

I have a somewhat larger view of some of the subjects and issues we are talking about today. I know this committee has jurisdiction over just the defense programs part. But when I look at the implications of S. 1085, I think in terms of the totality of the nuclear safety facility program of the Department of Energy. If I'm wrong, I would like to stand corrected on that issue. But I look at it in the sense of the totality and not just defense production, although that's the issue today. For example, the NRC group is now going on to look at the research reactors and the test reactors of the Department.

I would like to see an organizational structure which does have the independence of the committee suggested by the NRC. The general charter as I have heard it, not examined it, sounds appropriate to me. Then I would simply add that strengthening the organizational side of DOE is necessary. The NRC emphasis appears to be on environmental health and safety. I would also say strengthen it on the operations side because it's the operations people who have the line responsibility with the production itself.

So, I think you can see where I come out, that I would prefer to see the creation of the external technical advisory group for nuclear facilities reporting to the Secretary and within the structure of DOE to provide better coordination between contractor, program office and ES&H to promote effective interaction with the advisory group and a more open and rapid decisionmaking process.

Mr. Chairman, that concludes my introductory background remarks, and I would be glad to answer your questions.

[The prepared statement of Dr. Gerald Tape follows:]

Statement by

Gerald F. Tape

Mr. Chairman, I welcome this opportunity to testify before your Committee and to present my views on Title I of S.1085. My comments and recommendations are personal; I do not represent any organization or committee.

By way of personal background, I have been associated with nuclear programs for fifty years, first as a physicist and later as an administrator. I am retired but, from time to time, consult and serve on advisory committees. Former positions I have held include those of Deputy Director Brookhaven National Laboratory, President Associated Universities, Inc. (contractor and operator of the Brookhaven National Laboratory for the Department of Energy and the National Radio Astronomy Observatory for the National Science Foundation), Commissioner U.S. Atomic Energy Commission, and U.S. Representative to the International Atomic Energy Agency. I have served on numerous government advisory committees including the President's Science Advisory Committee and the Defense Science Board. Last year I served as a consultant to Secretary Herrington on N-Reactor Safety (Roddis Panel).

Before addressing the specifics of S.1085, Title I, I would like to make some general comments that may assist the Committee in understanding the rationale for my recommendations.

1. Continuing attention to safety is required at the operating level, that is, with the contractor. This means quality in operations and quality in maintenance. Safety reviews are carried out to determine that the necessary levels of quality are in effect and that the contractor has in place mechanisms for maintenance of that quality.

2. For older facilities, design reviews are carried out periodically to ascertain whether the original assumptions made and the analyses carried out at the time of construction or later modification are still valid. The major problems in this area have been changing standards and the dilemma presented by the desirability or necessity of upgrading an old facility.

3. Achievement of safety improvements is best obtained by cooperation and not by an adversarial approach. The contractor, DOE and an external advisory group should have the same objective, namely, safe operation and protection of the public. The differences that arise are usually associated with the degree of risk amelioration considered to be necessary and the benefit to be received by implementation versus cost.

4. Those involved with nuclear safety must deal with perceived risk as well as actual risk. In the absence of a wealth of experience derived from nuclear accidents, the public tends to be presented with the worst case of what "might happen," that is, a perceived risk.

5. There is often a conflict between personal risk and societal risk. Even in the personal risk category, there are differences between acceptable worker risk and public risk. In the final analysis these risks have to be weighed by the decision makers, based, of course, on the best available advice. The stronger the

technical basis, the more likely one is to achieve a rational decision. The trade-off between personal risk and societal risk is a key factor for issues involving defense production.

6. Whenever a safety issue arises, it should be addressed quickly and with the best technical advice available. With respect to government owned facilities, a streamlined operation, not burdened by additional layers of bureaucracy, is needed. For DOE this means close cooperation among the operator, the program office and Environment, Health and Safety (EH&S).

7. The public's confidence is required. Credibility and trust are necessary ingredients. Additional layers of independent oversight may be perceived as providing additional confidence, but in practice it may not be so. In the ideal world, a good experienced nuclear facility contractor working with a program office that has the talent and time to address urgent issues should be sufficient. I would argue that strengthening the "safety chain" at these levels can provide better confidence building than added bureaucratic measures.

In my report related to N-Reactor safety to Secretary Herrington, I made the following specific recommendation:

"DOE should make greater use of external peer review groups to address reactor safety on a continuing basis. The use of external entities such as ACRS and INPO should be pursued."

I continue to believe this, but strongly oppose the creation of a new independent government agency such as the proposed Department of Energy Nuclear Safety Board. By its very nature, it will be expected to take on an adversarial role. The proposed modus operandi suggests a formalistic and time consuming interaction. It anticipates conflicts rather than looking for solutions.

The Department of Energy has established the Environment, Health and Safety Organization independent of the program offices. To assure itself of independent advice, the Secretary last year obtained the services of external consultants and of the National Academies of Sciences and Engineering. That action served two objectives, to seek external advice and to improve DOE credibility. These were ad-hoc measures. They should be institutionalized. My recommendation is for the establishment of an external technical advisory committee (ACRS-like) reporting directly to the Secretary.

Let's examine the DOE's work load vis à vis reactor safety for the next six years. EH&S is in the process of completing its first round of major reviews of DOE's Class A reactors. The National Research Council (NRC) has just issued its report. DOE's first order of business will be to respond to both internal (EH&S) and external (NRC) recommendations. Without having been privy to these reports, I anticipate that DOE's major problems will be associated with Savannah River reactor operating levels, N-reactor start-up and the future of HFIR. Another round of EH&S major reviews should not be needed for several years.

Given the age and status of the defense production reactors, I have recommended an early commitment by the government to the design and construction of at least one new production reactor. Design review, if early authorization and appropriation are achieved, should occur within 3 to 5 years. An external ACRS-like technical advisory committee review is necessary as a part of that review.

In my opinion the proposed Nuclear Safety Board (NSB) is not the best mechanism to achieve effective nuclear reactor safety review. Given the requirements for DOE nuclear reactor safety oversight during the next six years, NSB appears to me to be "overkill." Furthermore, it would be cumbersome and costly.

With the establishment of an external advisory group on nuclear facilities safety (AGNFS) reporting to the Secretary, I would recommend that the Secretary examine carefully internal responsibilities and general working relationships within DOE, to ascertain what changes would be desirable in order to serve the advisory group adequately, to expedite information flow to Headquarters, and to consolidate Headquarters' elements directly involved in the decision making process. Safety issues that arise in the course of on-going operations require immediate attention. Although most of these issues are not life threatening they do require a Headquarters' decision, whatever the problem. A close working relationship is needed among contractor, DOE operations and ES&H key personnel. Credibility can be enhanced by recognized improvements in internal actions as well as utilization of an external advisory committee.

## Summary

Two principal issues seem to have given rise to Title I of the proposed Nuclear Protections and Safety Act of 1987.

I. A concern that nuclear material production requirements have taken precedence over safety needs at relevant DOE facilities.

II. A need for enhancing public confidence in DOE's nuclear facility operations, especially for defense programs, by placing ultimate responsibility for safety oversight in an independent external body.

The solution proposed in S.1085, Title I is to give safety concerns greater emphasis and visibility through the creation of the independent Nuclear Safety Board, and, when in the Secretary's view the Board's recommendation impacts adversely upon DOE program requirements, to obtain a Presidential decision.

I concur with the general objectives of Title I of S.1085, but I disagree with the mechanisms proposed. I see no need for the creation of a new independent government agency and legislated involvement of the President when disagreements exist. The work load proposed for the Board does not warrant the increased complexity of operation and cost. Our objective should be to seek a simpler, flexible solution rather than adding to the bureaucracy.

In my view the objectives sought can be more effectively realized by implementing the following two recommendations.

I. Create an external technical advisory group for nuclear facilities safety reporting to the Secretary of Energy.

The proposed advisory group would provide advice on both the process and the substance, as required. A group of say 12 technical experts working on a part-time basis would be more able to contribute substantially and in a more effective manner than three Board members with a limited staff.

II. Provide within DOE for better coordination between contractor, program office and EH&S to promote effective interaction with the advisory group and a more open and rapid decision making process.

There is room for improved coordination and expedited decision making in DOE. EH&S now makes use of external consultants, often contractor employees, on its review teams. There is no one more interested in facility safety than the operating contractors. Closer involvement of these parties, wherein the expertise resides, should permit sound decisions to be made on a more timely basis.

To conclude, I find alternatives that do not involve creation of an independent agency to be a more satisfactory approach to resolving issues relating to DOE nuclear facility safety.

Senator GLENN. Thank you, Dr. Tape.

There are just two of us left here. Senator Thurmond, why don't you go ahead?

Senator THURMOND. Dr. Tape, I have been troubled by several aspects of S. 1085. First, the risk standards seem to be very broad, especially when divorced from consideration of cost benefit analysis. And second, I am troubled by the fact that recommendations coming from this approach are binding on the Department of Energy. Can you comment on these aspects of the proposed legislation?

Dr. TAPE. In all of the actions in which there is a recommendation that either new equipment, change in procedure or so on is undertaken or should be undertaken, I think one does have to consider costs although I know there are some people who say that safety should have no cost constraints.

As an aside, Senator Thurmond, I think one of the difficulties in our country today is we do not have a concept of acceptable risk versus cost. And too many of us even in the nonnuclear area are accepting costs which are not in my view commensurate with risk. So, I do believe there is a risk-benefit consideration that must be made.

The major problem I have when there is a difference of opinion between the Secretary and, say, the board, is that in my view it should not require a Presidential type of decision. I know the comment has been made by Senator Glenn that in areas of defense production and so on, it should be.

Here in this case from some personal experience of my own—many, many years ago, to be sure—when we had to make certain decisions about risk, it was necessary for the AEC, when I was a member, to come out and make a statement that the risk was acceptable. And that was not made without full consideration within the Government. One had to look at the defense requirements on the defense side, the White House, the Bureau of the Budget, and so on. It took place. Now, it did not take place in the mandated way in which Senator Glenn is talking about.

Senator THURMOND. Dr. Tape, your testimony is very helpful in providing a perspective on nuclear safety and risk. S. 1085 charters the board to consider issues of safety and risk absent consideration of cost. What is your view of such a charter?

Dr. TAPE. The risk and cost, as I tried to indicate, are two things that need to interact. One has to be aware of the costs that are associated with these, and, by the way, costs are not just dollars. They might, in the case of defense production, be costs in the sense of material not available. And so, that kind of consideration must be taken into account.

To illustrate on the civilian side, if it is a research reactor, and if it is the only advanced research reactor operating in the country, one must look at the cost of shutting such a reactor down and the losses in research as contrasted with the rest of the world. I think these factors must be taken into consideration.

Senator THURMOND. Dr. Tape, you indicated in your testimony that you are opposed to the mechanisms proposed in Title I of S. 1085. Do you believe that Congress should legislate the establishment of the technical advisory group that you recommend?

Dr. TAPE. I would hope that the technical advisory group within the Department of Energy is undertaken by the Secretary of Energy's own initiative. In the sense of institutionalizing, I can see that it should be legislated by the Congress as well because then the institution goes beyond the present Secretary to any following Secretary.

Senator THURMOND. Dr. Tape, how do we balance the need for independence and credibility of independent oversighting, on the one hand, with your view that the board needs to be a working partner with the Department?

Dr. TAPE. Credibility comes basically from actions taken by the Department itself and its response to problems as they occur. I think if that is well known and well recognized in the public domain, that credibility gets reestablished. Waffling, if I can use the word, does not help.

With the technical advisory group in the Department, what I visualize there is a response by way of flexibility and a response by way of speed. I think that if there is an issue coming up either on the operations side, the contractors side, the ESH side, that that will be brought to the attention of that advisory committee. You have heard that the advisory committee is to have an agenda of its own. The people that I visualize on the committee are in it in almost a daily basis of what the issues are. Issues can be resolved very rapidly with their recommendations and a response from the Department.

Senator THURMOND. I believe my time is up. Thank you very much, Mr. Chairman.

Senator GLENN. Thank you, Senator Thurmond.

Just a couple of questions here. As I see it, we are not trying to do what you had in your testimony here, place ultimate responsibility for safety in an independent, external body. That was not the intent of this at all. The primary responsibility for safety has to be, as you point out, with the operators, the managers and so on.

And I would liken this more to something else. I don't know whether you have ever had cancer. I hope you never have it if you haven't.

Dr. TAPE. Thank you. I haven't.

Senator GLENN. But I have had some experience in our own family with this in years past. And we went out and got a second opinion before you let some surgeon go start carving up your relatives.

And that all this is is a second opinion. DOE is still going to have the primary authority for doing the things that have to be done with safety and with the contractors at these plants. But what this does is provide a second opinion. And it says that this is so important that if we ever have an incipient Chernobyl or whatever—maybe that's impossible in this country, but we came awfully close to something at TMI that we thought couldn't happen also, and that was with a regular civilian type reactor.

And all this is is saying that we should be considering all the safety advice that we can and institutionalizing it so it can't be just at this whim of a particular Department of Energy Secretary.

You recommend a technical advisory group. I would support that. I support it fully. But I would ask you the same question then I asked before. What happens when the technical advisory group recommends something and nothing happens? What does the technical advisory group do at that point?

Dr. TAPE. In the first place, Mr. Chairman, I have to make some differentiation in the sense of what is the issue at hand. And much of what I've seen by way of recommendations coming out lately tend to be in the paperwork area. And although we need to tidy that up and so on, I don't consider it life-threatening.

If, on the other hand, one has something which is so important that it could really be life-threatening, then I think one is going to get the attention of more than just the Secretary and that committee. It will certainly get the attention of the Congress. I think that is sufficient.

Senator GLENN. Well, how would you get the attention of other people besides the Secretary?

Dr. TAPE. My experience is that in one way or another the Congress is usually asking the question before the Secretary has the report. And so, I think the Congress is going to be very much involved if it gets to that issue.

Senator GLENN. Well, would this technical advisory group then give all their reports to the appropriate committees of Congress or are we going to just——

Dr. TAPE. My view is that if this is operated as an advisory committee, the reports will be public. The only time it might not be is in some classified area, as you've remarked. But I don't see that coming up very often.

Senator GLENN. These are very important areas because our production facilities and what they produce are classified. These are not specifically what they are doing at any one time and how much new material as opposed to refurbished or overhauled material is being used. Those are classified.

Dr. TAPE. I understand that.

Senator GLENN. Well, so how do we take care of that because you can't go public with that? All I tried to do with this is take whatever you want to call the group—a board, a committee, a group, whatever you call the technical advisory group—and say that in the expertise of that group of people such as yourself who have been into this business for so long and have such expertise, that where the system is run down, as you see, and we need a new reactor—and I agree with you in spades. I have proposed that over and over again, and I support that. Otherwise, we are going to wind up one of these days with either a very, very unsafe situation or no production capacity. And I think it is that important.

But where you have people like yourself who look at this and say, here is a situation that really is getting unsafe, but the Department of Energy Secretary for whatever reason doesn't want to go along with it, what is your recourse if it is classified and you cannot make it public?

Dr. TAPE. My point, which perhaps I haven't sufficiently made, is I would say there is an obligation on the Secretary to respond to the committee's findings. And that response would have to be public.

Now, if he decides to continue operation of a defense production reactor, because of the need for material, he still goes public saying that. That's where I think you will find the flag really is raised. And as I said earlier, we faced that decision years ago when the ACRS didn't make a determination as to safety. They just said they were unable to make a determination. And the Commission made a statement that it felt it was an acceptable risk.

Senator GLENN. Why do you think that the Secretary of Energy would always have all the information to make that decision? I would submit there are times when he does not have the full picture. The current INF negotiations, for instance, are being conducted. Those are classified in Europe. We don't know what happens behind the closed doors there. I was over there 2 or 3 weeks ago, met with the Soviets and our negotiators. Part of that is classified. And yet, what they do may drastically affect some of the future requirements for nuclear material. Now, at the time those negotiations are going on, all the details of that are only known to the President, the NSC, the Secretary of State. The Department of Energy isn't necessarily brought into that. Yet, he might make decisions without having all the information that he should have.

In a situation where there is really an unsafe situation, I just cannot, for the life of me, see the disadvantage of requiring that in a very important issue of safety that that be a decision from the Presidential level because that's the level at which all the information comes to focus on the problem at hand. What is the disadvantage of it?

Dr. TAPE. I understand what you are saying. And if I can visualize the scenario that you have described, I would anticipate, and I can't assure you it's done or not done because I'm not party to it, that that kind of a question of are we in a position to say terminate certain defense production capabilities or should we be pushing for something more as a consequence of some of these treaty negotiations, would be a matter that I would expect the Secretary of Energy to be talking to the NSC.

Senator GLENN. I would expect that too. But the problem has been we expected action out of DOE on 21 times where there were things that came up here. We expected action of one kind or another. We expected out of the Roddis panel some more action would be taken. We have expected it a number of times, and the problem is it just hasn't occurred. And that's the reason why I went the next step beyond the panel and just said where really something is important—and I think it is so important now because, as you point out, our whole system is very aged and getting worse every day. And you've been around some of the plants. You know what has happened over the last 30 years or so that these plants have been in existence. Our newest plant was built 24 years ago. So, they are getting old and it's going to be a problem that is going to get worse, not better.

And my time is expired.

Senator Thurmond, do you have any more question?

Senator THURMOND. Yes.

Senator GLENN. I note we are on a vote here.

Senator THURMOND. Just one more, Mr. Chairman.

Senator GLENN. One more? Fine.

Senator THURMOND. Thank you, Mr. Chairman.

Dr. Tape, when you sat as a commissioner of the Atomic Energy Commission, you were the recipient of recommendations on reactor safety from the Advisory Committee on Safeguards I believe.

Dr. TAPE. Correct.

Senator THURMOND. What was the impact of the recommendations made by the ACRS, and was it possible for the Atomic Energy Commission to ignore them even if they were advisory?

Dr. TAPE. We were in an impossible position of ignoring them. Every time we received a report from the committee, we analyzed it. We had our operating staff analyze it. We talked to the regulatory people as to the rationale behind the recommendations. And as I gave you an example, there was one case in which the committee said to us they were not able to make a decision on it, and we were then asked to make it on our own and make the finding. And the Commission did it in that case. So, we were in the position of having to respond.

Senator THURMOND. Dr. Tape, just one more question, then I'm through.

Do you feel that the recommendation made by the National Academy of Sciences to have an independent advisory committee or board, whatever you want to call it, to advise the Secretary—do you feel that that would provide the safety that is needed to protect the public?

Dr. TAPE. I do. I think that is a major move that the Department is undertaking, that the National Research Council has recommended, and I think this is a strong move.

Senator THURMOND. Thank you very much. I have no more questions, Mr. Chairman.

Senator GLENN. We will check and see whether Senator Exon is coming back or not, whether we want to put this hearing into recess for a few minutes or end it right now. We are checking by phone right now.

In any event, I would ask that other members of the committee may have questions they wish to submit soliciting your expertise on these matters to be included in the record, and I hope you could respond to them.

Dr. TAPE. I'll be happy to respond.

Senator GLENN. Good.

Thank you very much, Dr. Tape, for being here and being patient through our first session here. I think you were in the room all during that, so that was sort of a precursor that kept you advised of what our feelings were on these things.

Senator Exon is on his way back. And so, the hearing will stand in temporary recess until Senator Exon gets back here for whatever questions he wanted to ask.

[Recess.]

Senator Exon. The subcommittee will please reconvene. Doctor, I apologize. It's been a wild morning on the floor. I am very pleased that my colleagues were able to ask their questions before I returned.

I just have two questions. You were a member of the Roddis panel on the N reactor. You have found the Secretary to be receptive to the advice that that group has offered. Could you elaborate on this a little bit more? I am especially interested as to whether or not you believe that with the developments after the Roddis panel that we have turned the corner on straightening out the legitimate safety concerns that we have with our defense related nuclear production facilities.

Dr. Tape. Let me make an introductory comment. Our charter was to look at the process which the Department was then undertaking with respect to safety and safety review and not look specifically at safety of the N reactor per se, but was the process whereby the Department was going through this analysis and review, a reasonable one, and then also in the context of our study to bring up any issues.

It was really rather early on in the work that the ES&H was undertaking. And so, we had an opportunity to watch the various review committees that looked at N reactor. We even had preliminary information from those committees and were able to comment where we felt they needed to do more work in certain areas that they hadn't looked at very well.

I had mentioned earlier today, Mr. Chairman, that one of my recommendations to the Secretary was that they make a decision that the N reactor was not going to be rebuilt or refurbished to try to run into the 21st century, and that was done rather quickly. And as I also said, it was done with Congress' help. So, there was a case in point.

A number of us made remarks about the organization—well, first of all, one of our strong recommendations was for an ACRS-like or equivalent external committee. And we used the word "institutionalize." We were pleased that the Secretary had undertaken to ask the academies to undertake what has now become the NRC review which you heard about today.

I think it is fair to say that with the Academy committee under way, many of the things that we touched on could not have been acted on positively by the Secretary until he had the report of that committee. It is not good to have a committee appointed to look at something and then to start taking actions unless they are serious and life-threatening, for example. So, that was understandable.

I myself raised the question of organizational structure and the speed of decisionmaking and so on within the Department. And there again, you heard from the Academy this morning some recommendations that they had on that matter.

So, to me the whole process is moving. The work of inspection of all the reactors and all the safety areas with emphasis on defense production now is under way. And I feel that with the new institutionalized advisory committee of the kind that I'm hearing about, we have gone a long ways.

Senator **Exon**. What concerns do you have, Dr. Tape, about an oversight board whose recommendations are mandatory and binding on the Secretary and require personal Presidential involvement for any exemption?

Dr. **Tape**. The way I read the bill, it seemed to me that the responsibility or charter of that organization was to really come down hard on what I would call the regulatory side. Now, I think Senator Glenn may disagree with me on my interpretation of that. But that group would come back with recommendations to the Secretary. And they have got to be in the nature of mandatory, if I read the bill, recommendations that the Secretary must follow.

Now, I think that in many of the cases, by that time the Department will have found that those are things that they probably should implement anyway from their own work coming up, and there may not be any debate. On others there may be very well a difference of opinion. And it seemed to me that the whole process was one that was rather long, tedious and so on. And in part, I make that statement because I find any time one has an independent agency outside of your own Cabinet level operation, there is nothing but delay, confusion, turf problems and all the rest of it. And I just have a basic problem with that kind of an operation. So, in part, it is philosophical; in part, it is real.

Senator **Exon**. Dr. Tape, I couldn't agree with you more. As I've said on numerous occasions during this hearing this morning, I salute Senator Glenn for his leadership in this area and the goals that he is trying to establish. In listening to the discussions and questions that he has asked you and others, I take it that Senator Glenn may not feel that his bill goes as far as we think it does. And I suspect that if we'd sit down and talk as we have, we all could agree on that. So, I guess basically it's a matter of interpretation as to not only the goals but the language in his bill that many of us feel go far beyond what even Senator Glenn advocates.

Regardless of all the concerns that we have in all of these areas, which are very real and very legitimate, as the chairman of the Nuclear Deterrence Subcommittee I am critically concerned about how soon are we going to eliminate the problem and whether we are not going to have sufficient material to meet our overall nuclear deterrent.

From what you know, if you care to, I'd like you to respond to this question. If you were in the shoes of the chairman of the subcommittee faced with the real problem that we have established, would you now be pushing for the earliest possible development of new, state-of-the-art production facilities and limp along as best we can in the meantime with what we have? Or would you say that we might be able to stretch out the use of our existing facilities by reducing their production rate. That would mean starting up the N reactor again.

I'm just saying if you had to make a clear choice as to where you would put most of your limited dollars, would you go full steam ahead for a new, modern facility, or would you think that it would be wiser from a national security standpoint to do whatever we can to improve the safety of existing plants, including possible further cutback on production and take a little longer for a totally new facility.

Dr. TAPE. Mr. Chairman, I hate to put it in an either/or context, and let me tell you why.

In the first place, however treaty negotiations come out, however the various aspects like that come out, we can't escape the need for tritium. There has to be a long-term assured supply of tritium if you want to think of maintenance of a nuclear deterrence posture, which I can't see going away in my lifetime and even in my children's lifetime. So, I see no alternative but to move ahead aggressively to meet that requirement.

I think there are things that can be done, I think there are things that should be done. I heard this morning from the Academy committee they were not saying that the Savannah River reactors couldn't operate at full power; they were saying we need to look at it carefully to see if that is feasible. And those are things that, sure, require lower operating levels until better information is available. Those are matters that I think we should look at and try to maintain as much production as is necessary. And that is geared to all these other demand requirements.

But there I come back to saying no matter how it comes out, at least one new production that will meet tritium requirements is needed for the future. There just has to be.

Senator EXON. As an expert talking to a layman on this, is there considerable leeway as to what capacity we operate that N reactor at safety-wise? I assume there is. In other words, we aren't going to operate the N reactor at full capacity. We aren't planning to operate it at 10 percent capacity. Do I assume correctly when I assume that if there are concerns, you can measurably increase the safety factor by reducing the volume of production?

Dr. TAPE. Let me assume that all of the modifications, changes and so on that are under way now are satisfactory, that the startup review shows that things are in fine shape and the reactor starts up. Then the question of operating mode comes up before the powers that be. And one can operate at full power. Let's say it is approved to do that. One gets more product per year, but one is obviously shortening the ultimate lifespan of that reactor.

If one wants to operate at half power, one is getting less product per year, but one would extend the lifetime of it over a longer period.

Senator EXON. Can I stop you right there? Operating at half power—that's my question. Would that nominally be safer than operating at full power?

Dr. TAPE. I wouldn't say it is safer necessarily. It is simply extending the potential life——

Senator EXON. Extending the life.

Dr. TAPE [continuing]. Of the reactor. And in that particular case, I think one just has to look at one's requirements and see whether it is better to have less product now over a longer period of time—that is, less product per year over a longer period of time—or more now. And that could be very much tied into what is happening at Savannah River. It is a complex matter.

Senator EXON. And also, how long the new facility that we obviously have to build would come on line.

Dr. TAPE. Absolutely.

Senator EXON. Dr. Tape, thank you very much. We appreciate your patience in waiting this morning. And we have appreciated your excellent testimony.

The subcommittee is adjourned.

[Whereupon, at 11:40 a.m., the subcommittee was adjourned.]

# SAFETY OVERSIGHT FOR DEPARTMENT OF ENERGY NUCLEAR FACILITIES

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TUESDAY, NOVEMBER 3, 1987

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON STRATEGIC FORCES
AND NUCLEAR DETERRENCE,
*Washington, DC.*

The subcommittee met, pursuant to notice, at 9:34 a.m., in room SR-232A, Russell Senate Office Building, Senator J. James Exon (chairman) presiding.

Present: Senators Exon and Glenn.

Staff present: Robert F. Bott, Sherri Wasserman Goodman, William E. Hoehn, Jr., Ronald P. Kelly, T. Kirk McConnell, professional staff members; Mickie Jan Wise, staff assistant.

Also present: Jeffrey B. Subko, assistant to Senator Exon; William J. Lynn, assistant to Senator Kennedy; Edward M. McGaffigan, Jr., assistant to Senator Bingaman; Kevin T. Knobloch, assistant to Senator Wirth; and Mark J. Albrecht, assistant to Senator Wilson.

## OPENING STATEMENT BY SENATOR J. JAMES EXON, CHAIRMAN

Senator EXON. The subcommittee will please come to order.

We are continuing this morning a series of hearings on a tremendously important matter with regard to the safety aspects of our nuclear production facilities that support national security.

We are very pleased this morning to have two panels that we think are going to be extremely helpful to us and other members of the committee as we begin our markup of this piece of legislation in the full committee tomorrow.

I am very pleased to have with us this morning Mr. Frank White, Deputy Assistant Secretary of Labor for Occupational Safety and Health.

Secretary White, thank you for coming over here this morning. I have had a chance briefly to review the statement that you are going to make this morning. Without objection, I am going to include it in the record and would ask, if possible, that you proceed now with as brief as possible a summary. We will undoubtedly have some questions for you when you finish your testimony.

[The opening statement of Senator Exon follows:]

## PREPARED INTRODUCTORY REMARKS BY SENATOR J. JAMES EXON, CHAIRMAN

The hearing will come to order. The Subcommittee on Strategic Forces and Nuclear Deterrence meets today for its fifth and final hearing on health and safety aspects of DOE operations, in preparation for markup of Title I of S. 1085, which is before the committee on a sequential referral until November 9.

Today we will hear from two panels of witnesses. Our first witness is Mr. Frank White, the Deputy Assistant Secretary of Labor for Occupational Safety and Health. Following his testimony and questions from members, we will then hear testimony from two outside experts, Dr. Victor Gilinsky and Dr. Donald Kerr.

Mr. White, we are aware that you testified before the Governmental Affairs Committee prior to their markup on Title II of S. 1085. As you know, this committee has been assigned sequential referral only over Title I of S. 1085, the Independent Nuclear Safety Board. However, during our hearings, some have argued that DOE has allowed the need to meet materials production goals to dominate considerations of worker health and safety. If true, that would be a serious concern. However, DOE submitted for the record some data suggesting that DOE's safety and health record across its complex of defense facilities is quite comparable to, and in a number of instances, better than private industry.

GAO has also conducted a number of studies for Senator Glenn and others. They have testified that rank-and-file workers at DOE facilities do not have confidence that the contractors or on-site DOE personnel are concerned about employee safety.

I hope that you will be able to shed some light on these issues, Mr. White. Our committee is no less concerned about the health and safety of those who run the complex than we are about the public health and safety.

Senator EXON. I am pleased to recognize you at this time, Secretary White.

## STATEMENT OF FRANK WHITE, DEPUTY ASSISTANT SECRETARY FOR OCCUPATIONAL SAFETY AND HEALTH, DEPARTMENT OF LABOR

Mr. WHITE. Thank you, Mr. Chairman. I will try to highlight my testimony as you have requested.

I am pleased to appear here today to provide OSHA's views on the health and safety issues contained in S. 1085, and particularly the issue of worker health and safety at defense facilities of the Department of Energy.

By way of background, Mr. Chairman, in framing the Occupational Safety and Health Act, Congress sought to afford comprehensive protection to all workers, while, at the same time, avoiding duplication of effort by OSHA and other Federal agencies having specialized authority affecting occupational safety and health.

The provision of the act designed to achieve this goal, section 4(b)(1) of the Occupational Safety and Health Act, preempts OSHA's authority to regulate job, safety, and health conditions that are subject to the standards or regulations of another Federal agency. Thus, when another Federal agency exercises statutory authority to enforce standards or regulations affecting occupational safety and health, OSHA no longer has that authority.

Now, the Department of Energy has so exercised its statutory authority under section 161(i)(3) of the Atomic Energy Commission Act of 1954, and has adopted all of OSHA's safety and health standards pursuant to that authority. The Department of Energy is empowered to conduct inspections, to compel compliance through reliance on contractual obligations, to handle employee complaints and reports of imminent danger, to require that contractors record and report occupational injuries and illnesses, and to undertake a broad range of other actions which parallel OSHA's responsibilities.

With respect to the proposed legislation, OSHA believes that the dramatic step of a transfer of authority from DOE to OSHA simply has yet to be convincingly demonstrated.

We stated on June 17 at the hearing before the Governmental Affairs Committee and we repeat this morning that we stand ready to consider evidence of serious systemic flaws that could be corrected only through such a transfer. Certainly, problems that arise from time to time must be corrected. Believe it or not, even OSHA has had to address internal problems from time to time. But we are not persuaded that a transfer of authority to OSHA is the solution.

We particularly want to alert this committee to a major concern we have with S. 1085, and it is a problem that we explained in correspondence with the Governmental Affairs Committee subsequent to our testimony before that committee. The stated intent of the bill, S. 1085, is to have OSHA conduct annual inspections of DOE nuclear defense facilities, of which we understand there are currently approximately 136. Our concern is that the inclusion of a specialized responsibility for an enforcement program of the significant, substantial nature contemplated in S. 1085, would materially detract from OSHA's overall mission.

The broad coverage provided to OSHA under the Occupational Safety and Health Act places 5.5 million work places under its authority. Each year, the agency inspects on the average only one in 50 work places of the more than 3 million work places in which Federal OSHA enforces the program.

The assumption of an intensive inspection program focused on a single industry would be extremely disruptive to the agency's existing operations. At present, OSHA concentrates its discretionary inspection resources on industry segments with the highest rates of serious injury.

For example, more than 80 percent of OSHA's inspections are conducted in the construction industry and high hazard manufacturing industries. The greatest frequency with which an establishment might expect to receive a scheduled, comprehensive inspection might be once in every 3 years, and that is a maximum.

This concentration of inspection resources is reserved for industries with lost workday injury rates significantly higher than the national average.

Now, the DOE facilities have a lost workday injury rate substantially below the national average. Under OSHA's existing targeting procedures, these facilities would probably not be scheduled for comprehensive inspection, although they would be subject to complaint and accident inspections.

To summarize, Mr. Chairman, we are opposed to the transfer of worker safety and health authority envisioned in S. 1085 for three reasons. First, we are concerned that the enactment of S. 1085 would result in an unnecessary duplication of effort between OSHA and DOE. The proposal would foster precisely the situation that section 4(b)(1) of the Occupational Safety and Health Act was designed to avoid, and that is duplication and conflict between Federal agencies.

Second, we are concerned about the added strain the bill would place on OSHA's already considerable responsibilities. I have discussed the diversion of resources that is implicitly required by this bill.

Third, and finally, DOE apparently has the capacity to perform at least one complete inspection each year at each nuclear defense site, in addition to investigating complaints and accidents. OSHA could not hope to duplicate or even significantly supplement this effort. With the resources currently at DOE's disposal, OSHA would hope that any deficiencies in DOE's program could be remedied in ways other than adding OSHA's far more limited resource capabilities to the equation.

This concludes my statement, Mr. Chairman. I would be happy, of course, to answer any questions you may have.

[The prepared statement of Mr. White follows:]

## STATEMENT OF FRANK WHITE
## DEPUTY ASSISTANT SECRETARY FOR OCCUPATIONAL SAFETY AND HEALTH

Mr. Chairman and Members of the Subcommittee:

I am pleased to appear here today on behalf of the Occupational Safety and Health Administration (OSHA) to testify on the Nuclear Protections and Safety Act of 1987, S. 1085.

The Subcommittee has expressed particular interest in OSHA's views on the health and safety issues contained in Title I of S. 1085, particularly the issue of worker health and safety at defense facilities of the Department of Energy (DOE).

Mr. Chairman, in your letter inviting OSHA to testify before the Subcommittee, you noted that these issues are not separable by Title. Indeed, if Title II of S. 1085, "Application of OSHA and NIOSH to DOE Nuclear Facilities," were enacted, the independent nuclear safety board which would be established under Title I would, we believe, be empowered to oversee and make recommendations to DOE on all safety and health matters at DOE facilities, including those which are strictly occupational in nature.

We believe that this would be an inappropriate application of the board's oversight authority and would, in effect, give the board oversight over the Secretary of Labor. For this reason and several others, OSHA is strongly opposed to the worker safety and health transfer provisions of S. 1085.

Because the issues in Titles I and II are intertwined, I believe it would be useful, first, to describe the operation of section 4(b)(1) of the Occupational Safety and Health Act (OSH Act), which governs OSHA's relationship with other federal agencies with safety and health responsibilities, to define that relationship as it concerns DOE responsibilities over that agency's owned and leased nuclear facilities, and to describe OSHA's working relationship with DOE.

## Section 4(b)(1) of the OSH Act

In framing the OSH Act, Congress intended to afford comprehensive protection to all workers while at the same time avoiding duplication of effort by OSHA and other federal agencies having specialized authority affecting occupational safety and health. To accomplish this, the following provision was included:

> Nothing in this Act shall apply to working conditions of employees with respect to which other Federal agencies, and State agencies acting under section 274 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2021), exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health.

This provision--section 4(b)(1) of the OSH Act--preempts OSHA's authority to regulate job safety and health conditions which are subject to the standards or regulations of another federal agency. When another federal agency exercises statutory authority to prescribe or enforce standards or regulations affecting occupational safety and health, OSHA no longer has authority.

## Delineation of OSHA/DOE Authority

On January 2, 1974, the Chairman of the Atomic Energy Commission (AEC)--the predecessor agency of DOE--sent a letter to the Secretary of Labor asserting that the AEC had exercised its statutory authority under section 161(i)(3) of the Atomic Energy Act of 1954, as amended, to regulate occupational safety and health for contractor employees at government-owned, contractor-operated (GOCO) nuclear facilities.

In a letter of agreement dated February 4, 1974, to the Chairman of the AEC, the Secretary of Labor accepted the AEC's interpretation of the relevant section of the Atomic Energy Act and acknowledged that under the terms of section 4(b)(1) of the OSH Act, the exercise by the AEC of its authority precluded the application of the OSH Act to working conditions of private AEC contractors performing contractual operations in facilities owned or leased by the AEC. This agreement has formed the basis of OSHA's interagency relationship with the AEC and its successor agency, DOE.

The Department of Energy has adopted all of OSHA's safety and health standards. Under its statutory authority, DOE is empowered to conduct inspections, to compel compliance through reliance on contractual obligations, to handle employee complaints and reports of imminent danger, to require that contractors record and report occupational injuries and illnesses, and to undertake a broad range of other actions which parallel OSHA's responsibilities.

## Proposed Legislation

OSHA believes that the need for transfer of authority from DOE to OSHA has yet to be convincingly demonstrated. Our informal contacts with the occupational safety and health program in the nuclear facilities owned and leased by DOE appear to indicate that there are no systemic problems in the program sufficient to warrant a transfer of authority as proposed in Title II of the bill. We stated on June 17 at the hearing before the Governmental Affairs Committee, and we repeat that statement this morning, that we stand ready to consider any evidence to the contrary.

Given the unique expertise of DOE on radiological hazards, the extensive complement of DOE and contractor safety and health professionals assigned to each DOE nuclear facility, and the comprehensive safety and health program implemented by the Department of Energy at those installations, OSHA sees no need for Title II of the proposed legislation. Certainly, problems may arise from time to time at these workplaces, but we believe that there is insufficient evidence to warrant a transfer of authority from DOE to OSHA.

We particularly want to alert this committee to a major concern we have with S. 1085--a problem we explained in correspondence to the Governmental Affairs Committee subsequent to our testimony. The stated intent of the bill is to have OSHA conduct annual inspections of DOE nuclear defense facilities, of which there are currently 136. Our concern is that the inclusion of a specialized responsibility for an enforcement program of the nature contemplated in S. 1085 would materially detract from OSHA's overall mission, at least for the first several years of assumption of this additional authority.

OSHA's mission is to assure a safe and healthful workplace for all working Americans through a many-faceted program which, in addition to promulgation and enforcement of health and safety standards, includes such activities as onsite consultative services, training and education, encouragement of employers and employees in their efforts to reduce workplace hazards, and encouragement of state programs. In FY 1987, OSHA visited approximately 200,000 workplaces through these several programs.

The broad coverage provided to OSHA under the Occupational Safety and Health Act places 5.5 million workplaces under its authority. The appropriations level provided by the Congress since OSHA's inception makes clear that the agency is not intended to be a pervasive regulatory authority. Each year the agency inspects only one in 50 workplaces of the more than three million workplaces in the 30 states in which federal OSHA enforces the program. Approximately, one-third of these inspections are conducted in response to employee complaints, fatalities, catastrophes, and reports of imminent danger; for the most part these are partial inspections and do not involve a walk-through of the entire facility.

The assumption of an intensive inspection program focused on a single industry would be extremely disruptive to the agency's existing operations. At present, OSHA concentrates its discretionary inspection resources on industry segments with the highest rate of serious injury or, in the case of health hazards, the industries with records of serious violations of the agency's health standards. More than 80 percent of OSHA's inspections are conducted in the construction industry and high-hazard manufacturing industries (those with a lost workday injury rate above the national average for the private sector as a whole). The greatest frequency with which an establishment might expect to receive a scheduled comprehensive OSHA inspection would be once in every three years; this concentration of inspection resources is reserved for industries with lost workday injury rates significantly higher than the national average.

The DOE facilities have a lost workday injury rate substantially below the national average. Under OSHA's existing targeting procedures, these facilities would probably not be scheduled for a comprehensive inspection though complaints and accidents could lead to partial inspections.

In sum, Mr. Chairman, we are opposed to the transfer of worker safety and health authority envisioned in S. 1085 for three reasons. First, we are concerned that the enactment of

S. 1085 would result in unnecessary duplication of effort by OSHA and DOE. The proposal would foster precisely the situation that section 4(b)(1) of the OSH Act was designed to avoid--duplication and conflict between federal agencies. OSHA has consistently and vigorously supported the principles underlying section 4(b)(1), namely that it is in the best long term interest of safety and health as well as in the best interests of efficient allocation of government resources to avoid duplication of responsibility for worker protection. Section 4(b)(1), in effect, assures that the agency electing to exercise its authority over worker protection is fully accountable for its program. Erosion of this accountability may not be the best way to upgrade worker protection at DOE sites and would create an unfortunate precedent.

Second, we are concerned about the added strain the bill would place on OSHA's already considerable responsibilities. While this is not the direct concern of this committee, any diminution of OSHA's ability to respond to workers' complaints of serious hazards or to investigate serious accidents at the 5.5 million workplaces covered by the agency, would affect working conditions for all workers, including those employed at other defense-related activities currently under OSHA's authority and the jurisdiction of this committee.

Third and finally, DOE apparently has the capacity to perform at least one complete inspection a year at each nuclear defense site, in addition to investigating complaints and accidents. OSHA could not hope to duplicate or even significantly supplement that effort. With the resources currently at DOE's disposal, OSHA would hope that any deficiencies in DOE's program could be remedied in ways other than adding OSHA's far more limited resource capabilities to the equation. Moreover, the knowledge and experience of DOE's safety and health personnel with respect to these facilities and the concomitant lack of knowledge and experience of OSHA's personnel in these areas should not be overlooked.

Authority over occupational safety and health at DOE nuclear facilities was granted to the AEC and its successor agencies for good reason. DOE's preemption of OSHA authority, as intended, has had a number of useful consequences:

- elimination of wasteful duplication of effort by the two regulatory agencies,
- avoidance of jurisdictional conflict, and, perhaps most importantly,
- assignment of responsibility for job safety and health at DOE-owned, contractor-operated nuclear facilities to the agency best equipped, on the basis of long experience and expertise, to regulate these unique installations and to address radiological hazards.

That concludes my prepared statement, Mr. Chairman. I welcome the Subcommittee's questions.

Senator EXON. Secretary White, thank you very much. It is somewhat refreshing, I might say, to have a department that has been under an awful lost of stress, strain, and criticism over the years come in and indicate that this is an area where you would rather leave well enough alone.

Is that a fair paraphasing of your long and very informative statement?

Mr. WHITE. Mr. Chairman, OSHA cannot say with a certainty that DOE has the best program on the world with respect to worker safety and health. We are not on those sites, so we cannot really attest to how good the program is.

Our position is that we do not have any evidence that it is so bad that only a transfer to OSHA would correct the problem. We believe, from what we know, that what problems have arisen DOE has taken some steps to correct, and certainly it is capable of doing the job, and if there are problems that come to light through these hearings or elsewhere, that DOE should address those problems.

Senator Exon. It seems to me, Mr. White, that there have been some problems in the past and this is a highly sensitive and tremendously important area. Sometimes with legislation as well meaning as it might be, we tend occasionally to get off on a track that tries to affix some responsibility for past failures and then goes ahead and comes up with solutions that are not necessarily consistent with correcting the overall problem.

Generally speaking, from what you know of the DOE's history where some changes, I think correctly so, have been made, do you believe that the safety rules, regulations, and enforcement thereof have been as adequate in the Department of Energy with regard to the military nuclear facilities, as they are in the more private sector of production of this type of material?

Mr. White. Well, again, Mr. Chairman, speaking with respect to worker safety and health, OSHA uses many benchmarks to measure its success. One benchmark that we use is a comparison of the injury and illnesss rates among various industries.

Certainly from what we can tell—and, again, we do not profess to be expert in DOE's management of its program—but all external factors, such as injury and illness rates, certainly seem to indicate that this segment of the industry does provide reasonably safe and healthful workplaces, and that is what we would principally rely on.

Certainly we would be alarmed if those rates went up, if there seemed to be prevalent incidents of injuries and illnesses in a particular part of this industry. But we cannot see that. We do not see that. We do not observe that.

Again, we believe, using the objective measure of injury and illness statistics, the experience seems to be a relatively good one.

Senator Exon. Would you describe the effort by which your agency tried to make OSHA's views known to the Governmental Affairs Committee prior to and during the markup of S. 1085. I am curious to know about what happened in that area and what was the involvement of OSHA in this, and what OSHA's view and position were with regard to inquiry from the Governmental Affairs Committee during the incubation of S. 1085.

Mr. White. Mr. Chairman, we had a number of contacts. First, our testimony before that committee was certainly consistent with and essentially the same as the testimony we presented today. The issue of resources was raised during the hearings, and there was certainly concern on the part of the committee about the resource implications of S. 1085.

So, after the testimony, we had a number of meetings and discussions with committee staff to talk about resource implications. We provided information, pursuant to their request, about the magnitude of the resource requirements under S. 1085. We had an exchange of letters. We sent one letter on June 30 to Chairman Glenn and a followup letter on August 11 to Chairman Glenn in response to their inquiries about resource implications.

We laid out for that committee what we consider to be a rather strong case that the resource implications of S. 1085 for OSHA were rather dire, and that we would need substantially more resources, certainly than we had, in order to do what the bill apparently was intended to do, and that is perform at least annual inspections of each of DOE's facilities.

We provided that information through these letters, which are fairly comprehensive. If you do not have them in the record, we can certainly provide them.

In addition, we made a strong argument that the way in which the bill was crafted, that is, the revision of section 4(b)(1) of the Occupational Safety and Health Act, was unnecessary, frankly, in order to accomplish the objective. We argued that, rather than amend the Occupational Safety and Health Act, you could amend the Department of Energy's authority and accomplish pretty much the same objective.

Unfortunately, we did not make much headway, and we did not persuade the committee either that the resource implications were so serious that a rethinking of the bill would be appropriate, or that there would be a different way than amending the Occupational Safety and Health Act to accomplish the objectives of the bill.

Senator EXON. Secretary White, I am advised by staff that the information that you mentioned has not been made a part of the record.

I would ask that, if you do not have it with you today, that you do submit it, and that following the conclusions in the written record, the information that you have just referred to is made and shall be a part of the permanent record.

Do you happen to have that with you today?

Mr. WHITE. Yes, I do.

Senator EXON. The staff will see that that is placed in the record.

Mr. WHITE. Thank you.

[The information follows:]

U.S. DEPARTMENT OF LABOR,
ASSISTANT SECRETARY FOR OCCUPATIONAL SAFETY AND HEALTH,
*Washington, DC, June 30, 1987.*

Hon. JOHN GLENN,
*Chairman, Committee on Governmental Affairs,*
*U.S. Senate, Washington, DC.*

DEAR MR. CHAIRMAN: Thank you for your letter of June 18 to Deputy Assistant Secretary Frank White in which you requested a response to questions on the costs of implementing Title II of S. 1085. These questions were raised during an appearance by Mr. White at a Committee hearing on June 17.

At that time you asked for estimates of the costs of an enforcement program in which OSHA would conduct comprehensive inspections of the major DOE nuclear facilities at least once a year. On account of the short time frame in which this response had to be prepared and our lack of firsthand knowledge of the operations of Department of Energy (DOE) nuclear installations, our estimates of cost and personnel needs for assumption of authority by OSHA at these facilities are very rough. In making our estimations, we have assumed that federal OSHA would implement a nationwide program under Title II of the kind you described at the June 17 hearing. We have assumed that this program would provide Federal OSHA coverage in the 22 states and jurisdictions which operate their own OSHA-approved private-sector occupational safety and health programs, though it is not clear that this is Congressional intent as the bill is now drafted.

We have estimated that we would need roughly $13 million for the first year of implementation of Title II if we were to defer to DOE on radiological safety issues such as criticality safety and radiation containment, but assume responsibility for enforcement of all OSHA standards, including the agency's standard for employee exposure to ionizing radiation (29 CFR 1910.96). If, on the other hand, we were to have responsibility as well for oversight of radiological safety within DOE nuclear facilities, we have estimated the cost of the first year of implementation of Title II at approximately $57 million. For the first contingency described above, OSHA would need approximately 160 additional employees, and for the second contingency, approximately 720 additional employees.

It should be noted that OSHA has no employees who are classified as health physicists or nuclear engineers. We do have at least 100 industrial hygienists and safety specialist who have been trained to perform screening surveys for employee exposure to ionizing radiation, eight of whom have particular expertise in assessing health hazards from radiation exposure.

In our cost estimates, we have assumed that OSHA would conduct a comprehensive safety and health inspection at approximately 60 DOE facilities each year and at an additional 75 facilities once every three years. This is estimated to be equivalent to DOE's current inspection frequency. It appears that the bill as drafted does not require this degree of effort, although based on your statement we believe your intent is to provide this level of coverage. OSHA apparently could fulfill its responsibility under Title II by conducting inspections solely in response to employee complaints, fatalities, catastrophes, and reports of imminent dangers.

We must express our continued opposition to enactment of Title II of S. 1085 and reiterate our belief, stated at the June 17 hearing, that the need for a transfer of authority from DOE to OSHA has yet to be convincingly demonstrated. We wish to point out as well that the inclusion of a specialized responsibility of the nature contemplated in S. 1085 would materially detract from OSHA's overall mission, at least for the first several years of assumption of this additional authority.

OSHA's mission is to assure a safe and healthful workplace for all working Americans through a many-faceted program which, in addition to promulgation and enforcement of health and safety standards, includes such activities as onsite consultative services, training and education, encouragement of employers and employees in their efforts to reduce workplace hazards, and encouragement of state programs. In FY 1986, OSHA visited over 200,000 workplaces through these several programs.

The broad coverage provided to OSHA under the Occupational Safety and Health Act places 5.5 million workplaces under its authority. The appropriations level provided by the Congress since OSHA's inception makes clear that the agency is not intended to be a pervasive regulatory authority. Each year the agency inspects only one in fifty workplaces of the more than three million workplaces in the 30 states in which federal OSHA enforces the program. Approximately one-third of these inspections are conducted in response to employee complaints, fatalities, catastrophes, and reports of imminent danger; for the most part these are partial inspections and do not involve a walk-through of the entire facility.

OSHA concentrates its discretionary inspection resource on industry segments with the highest rate of serious injury or, in the case of health hazards, the industries with records of serious violations of the agency's health standards. More than 80 percent of OSHA's inspections are conducted in the construction industry and high-hazard manufacturing industries (those with lost workday injury rates above the national average for the private sector as a whole). The greatest frequency with which an establishment might expect to receive a scheduled comprehensive OSHA inspection would be once in every three years; this concentration of inspection resources is reserved for industries with lost workday injury rates significantly higher than the national average.

The DOE facilities have a lost workday injury rate substantially below the national average. Under OSHA's existing targeting procedures, these facilities would probably not be scheduled for a comprehensive inspection though complaints and accidents could lead to partial inspections.

Even with the provision of additional funds and hiring authority, the assumption of an intensive inspection program focused on a single industry (such as you described at the June 17 hearing) would be extremely disruptive to the Agency's existing operations. We have serious concerns about the length of time needed to hire and train staff to implement Title II under either contingency outlined above. It would be several years at least before this new intensive program for the nuclear industry would be adequately staffed. During that interval, OSHA's efforts for other industry segments would suffer as the Agency shifted resources to assume its new responsibilities.

Should you need any additional information, please contact me or have your staff contact the Department's Office of Congressional Affairs at 523-8141.

Sincerely,

John A. Pendergrass,
*Assistant Secretary.*

U.S. Department of Labor,
Assistant Secretary for Occupational Safety and Health,
*Washington, DC, August 11, 1987.*

Hon. John Glenn,
*Chairman, Committee on Governmental Affairs,*
*U.S. Senate, Washington, DC.*

Dear Mr. Chairman: Thank you for your letter of July 16 in which you request revised estimates of the costs and personnel needed to implement Title II of S. 1085, as amended by the Committee.

On June 30, we provided estimates to the Committee of the dollar and people resources needed to implement S. 1085—$13 million and 160 employees. Those calculations were based on a projection of 85 comprehensive inspections and 200 complaint and accident investigations per year at approximately 136 Department of Energy (DOE) establishments. In making those estimates we had assumed that the Occupational Safety and Health Administration (OSHA) would conduct one comprehensive inspection per year at each of 60 plants and one inspection every three years at the remaining DOE establishments. Those figures were intended to be roughly equivalent to DOE's current inspection frequency under its "OSHA-comparability program."

In your most recent letter you asked that we revise our earlier cost and personnel estimates downward to reflect OSHA coverage at only 60 DOE sites. Enclosed with your letter was a list of all 136 DOE establishments, annotated to show the number of employees at each of the 60 establishments in question. Since receiving the list, we have confirmed with DOE that S. 1085, as amended, would not limit OSHA's authority to these 60 establishments as the Committee intends, but would require annual OSHA inspections at all listed DOE facilities. The amended bill therefore makes no change in the number of establishments OSHA would cover. In fact, the bill's mandate for annual inspections at all listed DOE facilities would result in an increase in the number of required OSHA inspections.

We assume that your intent, as described in your letter of July 16—to have us conduct annual inspections of 60 DOE establishments—will eventually be reflected in the Committee's final bill. Therefore, we are proceeding with revised estimates as you requested.

We estimate that we would need roughly $10 million and 120 employees for first-year implementation of S. 1085. Our updated calculations are based on the assumption that OSHA would schedule a total of 60 comprehensive safety and health inspections per year at DOE establishments and would conduct approximately 150 partial inspections in response to employee complaints and reports of fatalities and catastrophes. In making these estimates we have further assumed that federal OSHA would inspect in the 22 states and jurisdictions which operate their own OSHA-approved private-sector job safety and health programs, although it is not clear that this is the intent of the amended bill. We also have assumed that the inspections would be conducted to ensure compliance with all OSHA standards, including its standard for ionizing radiation, but would not address criticality safety or containment issues which would remain under the authority of DOE.

We wish to take this opportunity to reiterate our objections to S. 1085 as expressed by Deputy Assistant Secretary Frank White at the Committee hearing on June 17 and by me in my letter of June 30. We do not believe that the need for OSHA's assumption of authority at DOE establishments has been convincingly demonstrated, and we are concerned that S. 1085 would result in unnecessary duplication of inspection effort by OSHA and DOE. Moreover, we are concerned about the disruption that would occur to other important agency programs during the lengthy period of time it would take OSHA to fully staff and implement S. 1085. For at least several years OSHA would need to divert resources from inspections in other industries to meet the bill's requirement for annual inspections at DOE facilities.

We also continue to object generally to the bill's provisions which would amend section 4(b)(1) of the Occupational Safety and Health Act to provide OSHA with inspection authority at DOE facilities and to require that OSHA issue standards specifically applicable to such workplaces. We ask that you reconsider the alternative legislative language, provided to your staff, which would achieve the intent of S. 1085 without amending OSHA's enabling statute (copy of alternative language enclosed).

I would be pleased to discuss this matter with you at your convenience or to make my staff available for additional consultations.

Sincerely,

John A. Pendergrass,
*Assistant Secretary.*

Senator EXON. Mr. White, how well do you feel you understand what DOE is doing to enforce occupational health and safety standards? Are you comfortable that they are using similar standards and criteria to those that you employ?

Mr. WHITE. Certainly, Mr. Chairman, we are satisfied that the standards are the same as OSHA's and that, basically, their enforcement processes mirror OSHA's. That is a requirement under the Occupational Safety and Health Act. If jurisdiction is to be exercised over safety and health by another agency, there has to be statutory authority and there has to be an exercise of that authority with respect to enforcement, standards, and other OSHA requirements.

I believe that the actual adoption by DOE of all of OSHA's standards is somewhat unusual in that other agencies who also exercise authority over safety and health have not gone to the same lengths DOE has to, in fact, adopt all of OSHA's standards and safety and health protections.

Senator EXON. Are they—"they" being DOE—conducting inspections of DOE facilities more often or less often than you would be able to do if S. 1085 were to become law?

Mr. WHITE. As we noted in our testimony, Mr. Chairman, the frequency with which DOE performs its inspections is much greater than OSHA does or would do under ordinary circumstances under the Occupational Safety and Health Act. Even the most high hazard industries do not get inspected in a comprehensive way any more than once every 3 or 4 years.

DOE, it is our understanding, does a comprehensive inspection once every year, and, in addition, responds to complaints and accidents. So, we are persuaded that DOE, at least with respect to the frequency of their inspections, clearly does a better job, or at least a more frequent job, than OSHA does.

Senator EXON. Mr. White, if OSHA were given more review and enforcement resources, where would you want to put them to work? How would you use those new tools?

Would DOE be close to the top of the list of where next facilities should be questioned?

Mr. WHITE. Well, of course, that would depend on the legislation. If it were clear that OSHA had to focus its resources more intensively than it normally does on these sites, then, obviously, we would have to try to comply with the statutory mandate.

But, again, under ordinary circumstances, if the DOE facilities were simply among those facilities that OSHA ordinarily targets, we would not afford them any higher priority, given our current procedures, than any other facilities of a similar type, and would not focus our inspection resources particularly intensively on those facilities.

Now, the exception might be in the health area. Again, depending on the legislation, if we were given authority to perform inspections with respect to the production of nuclear material and radioactive material and were required to focus our inspections in that area, my guess is that we would more intensively focus our inspections on the health hazards associated with that kind of issue.

Senator EXON. Maybe I did not phrase my question as well as I should have.

If you had more resources to put to work on this important matter of safety and were not bound by legislative direction, and would put those resources to work to improve the overall important matter of safety, would you put your people under these new resources to work on addressing the safety in the nuclear materials production area, which DOE has a great responsibility for now and which S. 1085 would change to a considerable degree? Would you put those resources to work there or would you more likely put those resources to work in other areas of the nuclear industry where you feel that safety continues to be an important concern as well?

I guess what I am trying to ask you as an expert witness is this: Do you believe that there are just as many safety problems outside of the military area of nuclear production as there are in other sectors of the nuclear industry?

Where, if we are going to provide more resources today, would you, of your own free will and accord, put such resources to work?

Mr. WHITE. I think I better understand your question, Mr. Chairman. I think it is a very difficult question for me to answer at this time.

This is so in part because we do not have a thorough knowledge of the DOE facilities. I think we would, if we were given the statutory authority, have to survey those facilities, have to take a look, have to see whether the experience that seems to be the case is, in fact, the case in our judgment. Based upon that kind of review, we would then determine where best to put our resources.

In the absence of a more in-depth knowledge of those facilities, it is hard for me to say, here and now, where we might focus those resources.

Senator EXON. Mr. White, what we have been trying to do here—and you have been very helpful—is to make sure that, with all of our concerns about safety, we are not witch hunting, with regard to the legislation we are discussing here today. Certainly, I would like to emphasize again, as I have throughout these hearings, that none of us tends to minimize the potential dangers, and, of course, we do not live in a risk free society. It is critically important, though, that we put the proper balance on these things. As has been proven very frequently in the past, that the creation of a law that creates the appearance of something good and wholesome does not necessarily mean that it is going to work out that way.

I can understand your reluctance to become involved in predictions of how you would use resources. Let me ask the question in a somewhat different way so that I can properly understand the perspective that you, as an expert in this area, bring to this subcommittee.

I assume that your office has reviewed the DOE occupational health and safety statistics—I would emphasize the word "statistics"—and compared them to similar data from comparable private facilities. If you have, would you give us your assessment or conclusions as to how DOE fares in this area, strictly from the statistics standpoint. I suspect that you are not in a position at this time to say that all of this information that comes to our attention is necessarily totally accurate.

Mr. **White**. Again, I don't have that information at my fingertips. We will be happy to provide those statistics that we have.

As I indicated, with respect to comparing these facilities and the injury and illness data of these facilities that would be covered by S. 1085 with comparable facilities cross the country, we believe that the statistics indicate that they fare quite well, in fact, are below the national average, and, in fact, have continued to decline, which seems indicative of some progress. If we can provide further information prior to the hearing for the record, we will try to do that. That, I guess, is my overview.

[The information follows:]

Assuming that OSHA were accorded additional discretionary inspection resources, we believe that the Agency could deploy them more effectively in a number of industries other than DOE nuclear plants. OSHA allocates its resources as much as possible to high-hazard workplaces. The incidence of serious work-related injuries is, we believe, the best indicator of the extent of potential safety hazards in an industry or in an establishment. By serious injuries, we mean those that result in time lost from work, or lost-workday injuries.

On this basis, several industry groups, principally in the manufacturing and construction sectors, would appear to warrant a higher priority than DOE plants in OSHA's inspection effort. Among these are high-hazard manufacturing workplaces such as meat-packing plants, steel mills, foundries, paper mills and wood-products manufacturing plants. These manufacturing workplaces have annual lost workday injury incidence rates as high as 17.2 per 100 full-time workers in 1986, the latest year for which Bureau of Labor Statistics are available, compared to a rate of 4.5 for manufacturing industries generally and 3.6 for the private sector as a whole. The construction industry, with an annual lost workday injury rate of 6.8 per 100 full-time workers in 1986, also would rank higher for OSHA inspections than DOE nuclear plants.

By contrast, the lost workday injury incidence rate at DOE plants, according to DOE-published data, was 1.2 per 100 full-time workers in 1985 and 1.0 in 1986. This is about one third the average rate for all U.S. industries and many times lower than the rate for high-hazard manufacturing and construction.

The below-average rate of fatalities to DOE nuclear plants provides further evidence that additional OSHA inspection resources might be better used elsewhere. The fatality incidence rate at DOE nuclear plants was 0.2 per 100,000 workers in 1985 and 3.0 in 1986, compared with 1985 and 1986 rates of 6.2 and 5.9 in the private sector as a whole and 30.8 and 20.3 in the construction industry. We should point out that fatality rates are not as reliable indicators of an industry's safety record as are lost workday injury rates. Since occupational deaths are relatively rare events, fatality rates may be skewed by one of two catastrophic accidents. Nonetheless, the consistently lower-than-average rate of fatalities in DOE plants over the last several years appears to indicate that these facilities experience fewer occupational deaths than the norm.

OSHA's policy is to concentrate its inspection resources on industries where the rate of serious injuries indicates that employees are most likely to be at greatest risk. We believe it would be in the best interests of all workers to continue to apply this system of priorities in choosing industries for additional OSHA inspections.

Senator **Exon**. That would be very helpful, Mr. Secretary. I think you can tell from our line of questioning, and if you have looked at our previous testimony and at the witnesses that we have called, that we are trying to take a pretty broad overview look at this matter, while not underestimating for a moment the potentially serious situation that we confront with our slowness to develop new facilities in these production areas.

Specifically, has OSHA had a chance to look at all of this from the workers' safety standpoint? What is your perspective as to worker safety at the DOE facilities, from the information that you do have?

Mr. **White**. That is our primary focus, Mr. Chairman. It is really with respect to worker injuries and illnesses that I have been speaking. That is the perspective from which I have been speaking.

Again, DOE has certainly the capability, the resources, to do a more comprehensive job than OSHA does and appears to be doing that job. If there are problems with DOE's system, I think we would suggest that that problem be dealt with and that improvements be insisted upon. Certainly OSHA would be happy to consult with this committee or with DOE about possible improvements in their system or in their management.

However, based upon what we know—and I emphasize again that we do not purport to be experts on DOE's system—based upon what we know, we believe that DOE is capable of doing a very good job and, given our resources, we think we can really only add very incrementally to that, if at all. To put another layer of bureaucracy, if you will, into the DOE system simply does not seem to be the best use of the scarce resources that are available, and would, in fact, detract, we believe, from safety and health of workers nationwide.

Senator **Exon**. Mr. Secretary, thank you very much. You have been very helpful.

If you would supply that and any additional information for the record pertinent to the questions that I have asked you this morning, we would very much appreciate it.

With that, you are excused.

Mr. **White**. Thank you, Mr. Chairman. I appreciate it.

Senator **Exon**. The second panel that we have here this morning is also a tremendously important one. I would call the next panel to the witness table at this time.

With a hearty good morning, gentlemen, and a thank you for appearing before the committee today to testify on Title I of S. 1085, which is before this committee on sequential referral, we welcome each of your views on the issues of how best to provide an effective, independent oversight for health and safety issues at DOE's nuclear facilities.

The Secretary of Energy has a number of problems to deal with, but none as serious as the lack of public confidence that DOE's defense facilities can be and are operated without undue risk to public health and safety. It is clear that the time has come to implement some kind of independent advisory board. This can serve both to restore some of the lost public confidence and to provide continuing expert assistance to the Secretary, as he wrestles with the complex problems of continuing to operate an aging set of production facilities.

You are both long-term experts on the nuclear energy issues, and we look forward to your testimony. We will hear opening statements from each of you, one after the other. Then we will go to questions from the members.

But before we do that, I want to explain to you and the other witness earlier this morning that I had a discussion with the ranking member, Senator Thurmond, who was planning to be here this morning, but there happened to be an emergency meeting of the leadership at the White House at 9:30, the same time this meeting was called for, and he was disappointed that he could not make it here. He asked me to give his apologies to all the witnesses, and he will be reviewing the testimony.

I would ask staff at this time, is there any statement on behalf of Senator Thurmond, that we would want entered into the record at this time?

[Pause.]

Without objection, the opening statement that Senator Thurmond was prepared to give will be incorporated in an appropriate part of the record.

[The prepared statement of Senator Thurmond follows:]

### PREPARED STATEMENT OF SENATOR STROM THURMOND

Thank you, Mr. Chairman.

At the outset of what will be the last of a series of hearings in consideration of S-1085, I want to congratulate you for what has been an outstanding display of leadership and dedication. The issues involved in the sequential referral of S. 1085 have not been typical of issues normally before the subcommittee. Nevertheless, I believe that you have established an excellent record on which to build a recommendation to the full committee tomorrow.

Mr. Chairman, I join you in welcoming Mr. White to the subcommittee. I understand that he brings yet another perspective on the issue of safety at our nuclear weapons production facilities, and on the approach to safety oversight contained in S. 1085. Mr. White, I look forward to your testimony.

Thank you, Mr. Chairman.

Senator **EXON**. Gentlemen, welcome to you at this time. I will be glad to recognize both of you.

Is there any preference as to who would prefer to go first?

Dr. **KERR**. Well, "G" comes before "K" in the alphabet.

Senator **EXON**. Then who wishes to go first?

Mr. **GILINSKY**. I will go first, Mr. Chairman.

Senator **EXON**. Mr. Gilinsky, welcome to you.

## STATEMENT OF VICTOR GILINSKY, CONSULTANT, WASHINGTON, DC

Mr. **GILINSKY**. Thank you, Mr. Chairman.

I am here to testify on Title I of S. 1085, the bill before you, which would create an independent oversight board.

My relationship to this subject stems mainly from nearly 10 years experience as a member of the Nuclear Regulatory Commission. The NRC of course regulates commercial nuclear affairs, but it also has some oversight responsibilities for certain DOE and defense related facilities.

I strongly support the creation of an independent safety board to oversee DOE nuclear facilities. Such a board, I think, would significantly enhance safety at these facilities and it would also likely have a broader beneficial effect on DOE programs.

I would, however, recommend certain modifications in the detailed provisions that cover the powers of the board as contemplated in S. 1085.

Let me start with a few words on the subject of an independent board. There has been a long tradition, going back to the early days of the Atomic Energy Commission, of delegating substantial authority to field offices and contractors, and that practice has carried over to successor agencies, including the DOE, and having these entities operate on the basis of rather broad directives.

This approach has contributed to many, one might say, remarkable achievements, especially in the agency's early days. But it does have drawbacks in the area of nuclear safety.

Nuclear safety needs special treatment for a number of reasons. The issues are complex, they are subtle, and the consequences of accidents, as we all know, can be enormous. The technology requires a very high level of alertness and care to keep it within safe limits. And that alertness must also extend to the experience of others as well, because one wants as broad a data base as possible.

In consequence, many checks and cross checks are needed.

Now, the art in setting up a board to oversee safety of the Department's nuclear programs lies in striking the right balance in granting the board authority and resources. With too little clout, the board will be ineffective; with too much direct authority, the board will become entangled in managerial functions, and that would not be helpful, either. It would confuse lines of responsibility and, although this may seem less obvious, I believe it would undermine the board's own safety role.

To my mind, the vital aspects of the independent nuclear safety board proposal are the following: first of all, its independence; a broad charter to evaluate nuclear safety problems; total access to nuclear safety information in the Department and throughout the Government; adequate resources to assess safety information; the responsibility to present safety recommendations to the Secretary and the Congress (and these should be public, where possible); and a requirement that the Secretary respond reasonably promptly to the board's recommendations, either accepting them or, if not, explaining in full why not to the board and the Congress.

These provisions exist in the bill, with the exception of the matter of adequate resources.

The staffing is sufficient, but I believe the board should be authorized additional funds to have some capacity to contract independently for safety studies.

I think the board needs to have that capacity to check on work performed by the Secretary.

With this important addition, I think an oversight system of this sort would work well, would make a major contribution to the safety of DOE programs. The Secretary would not lightly override the board's recommendations, especially when they are available to the Congress and to the public.

If, in the extreme, the board stated that a facility should not operate because it posed an unacceptable risk to the public health, the Secretary would have to have an extraordinary reason to avoid that conclusion.

S. 1085 goes further in this direction by giving the board the power to set into motion a complex process that would compel the Secretary to adopt the board's recommendations unless one of several conditions were met: either the recommendations were not technically or economically feasible (which would be odd, since the board is required to take those matters, into account); two, the Secretary agrees but funds are unavailable; or, three, the President exempts the facility on national security grounds. Each of these steps, in turn, triggers another series of decision points.

My feeling is that these provisions add unnecessary and undesirable complications to the interactions of the board and the Department. At one extreme, they could lead on some issues to two parallel Department managements, only one of which would be responsible for Department functions. At the other extreme, and my experience with the NRC's Advisory Committee suggests that this is no less likely an outcome, it could inhibit the board's safety recommendations for fear of setting into motion the machinery of S. 1085.

I think the wiser course would be to keep line and oversight functions distant and to drop these provisions.

I have some other detailed comments which I plan to give to the committee staff. I would like, however, to mention a couple of them here.

The bill contains a provision which instructs the board to "investigate any event which the board determines to be important from a safety point of view." I would insert the word "sufficiently" before "important," to give the board some flexibility and also to avoid the implication that if something is not investigated, it is therefore, not important.

I would also mention that if you retain the sunset provision in the bill, I would have the board report back to Congress in 3 years, rather than 5, so that Congress, if it likes what it sees, can extend the board's life earlier and, thereby, enhance its effectiveness.

In conclusion, an independent safety board, as outlined in Title I, would perform a useful and important function. I believe it would be more effective with some clarification of functions between the board and the Department and with additional authority to contract for independent assistance.

I should add that the long-term answer to nuclear safety at the Department's facilities lies not so much in the detailed workings of the proposed board, but in replacing outdated, but still needed, facilities with safer ones.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Gilinsky follows:]

## PREPARED STATEMENT OF VICTOR GILINSKY

Mr. Chairman, members of the committee: I am here to testify on Title I of S. 1085, the Nuclear Protection and Safety Act of 1987, which would create an independent oversight board to ensure the safety of Department of Energy nuclear facilities.

My relation to this subject stems mainly from nearly ten years' experience as a member of the Nuclear Regulatory Commission. The NRC regulates safety at commercial nuclear facilities. It also has safety oversight responsibilities for certain DOE and defense-related facilities.

I strongly support the creation of an independent safety board to oversee DOE nuclear facilities. Such a board would significantly enhance nuclear safety at these facilities, and it would also likely have a broader beneficial effect on DOE programs. I would however recommend certain modifications in the detailed provisions that cover the powers of the Nuclear Safety Board as comtemplated in S.1085.

Let my start with a few words on the subject of an independent board. The Governmental Affairs Committee's report on the bill presents the historical background which led to DOE's nuclear programs to have a relatively informal system of safety controls. There had been a long tradition, going back to the early days of the Atomic Energy Commission, of delegating substantial authority to field offices and contractors, and having them operate on the basis of rather broad directives. This approach contributed to many remarkable achievements, especially in the AEC's early days. It does, however, have drawbacks in the area of nuclear safety.

Nuclear safety needs special treatment for a number of reasons. The issues are complex and subtle. The consequences of accidents can be enormous. The technology requires a very high level of alertness and care to keep it within safe limits. The alertness must extend to the experience of others, as well. In consequence, many checks and cross-checks are needed.

The art in setting up a board to oversee safety of the Department's nuclear programs lies in striking the right balance in granting the board authority and resources. With too little clout the board will be ineffective. With two much direct authority the board would become entangled in managerial functions, and that wouldn't be helpful, either. It would confuse lines of responsibility, and—although this may be less obvious—I believe it would undermine the board's own safety role.

To my mind, the vital aspects of the independent Nuclear Safety Board proposal are: a broad charter to evaluate nuclear safety problems; total access to nuclear safety information in the Department and elsewhere in the Government; adequate resources to assess safety information; the responsibility to present safety recommendations to the Secretary and the Congress (which recommendations should be public, to the extent possible); and a requirement that the Secretary respond reasonably promptly to the Board's recommendations, either accepting them or, if not, providing a full explanation to the Board and Congress.

These provisions exist in S. 1085, with the exception of the matter of adequate resources. The staffing is sufficient, but I believe the Board should be authorized additional funds to contract independently for safety studies. The Board has to have some independent capacity to check on work performed by the Secretary. With this important addition, I think an oversight system of this sort would work well and would make a major contribution to safety of DOE programs. The Secretary would not lightly override the Board's recommendations, especially when they are available to the Congress and the public. If in the extreme the Board stated that a facility should not operate because it posed an unacceptable risk to the public health, the Secretary would have to have an extraordinary reason to avoid that conclusion.

S. 1085 goes further in this direction by giving the Board the power to set in motion a complex process that would compel the Secretary to adopt the Board's recommendations unless one of several conditions obtains: the recommendations are not technically or economically feasible (which would be odd since the Board is required to take such matters into account); the Secretary agrees but funds are unavailable; or the President exempts the facility on national security grounds.

Each of these steps triggers another series of decision points.

My feeling is that these provisions add unnecessary and undesirable complications to the interaction of the Board and the Department. At one extreme, they could lead, on some issues, to two parallel Department managements, only one of which would be responsible for Department functions. At the other extreme, and my experience with the NRC's Advisory Committee suggests this is no less likely an outcome, it could inhibit the Board's safety recommendations for fear of setting in motion the machinery of S. 1085. I think the wiser course is to keep line and oversight functions distinct and to drop these provisions.

I have some more detailed comments on the bill's language which I would plan to give to the Committee staff. I would like however to mention a couple of these.

The bill contains a provision which instructs the Board to " . . . investigate any event . . . which the Board determines to be important . . . because of an actual or potential adverse effect on the health and safety of the public." I would insert the word "sufficiently" before "important," to give the Board some flexibility, and also to avoid the implication that if something is not investigated it is therefore not important.

If you should retain the sunset provision I would have the Board report back to Congress in three years rather than five so that Congress, if it likes what it sees, can extend the Board's life earlier and thereby enhance its effectiveness.

In conclusion, an independent Nuclear Safety Board as outlined in Title I would perform a useful and important function. I believe it would be more effective with some clarification of functions between the Board and the Department and with additional authority to contract for independent assistance. I should add that the long-term answer to nuclear safety at the Department's facilities lies not so much in the detailed workings of the proposed Board, but in replacing outdated, but still needed, facilities with safer ones.

Senator EXON. Mr. Gilinsky, thank you very much. I will hold my questions until we have had testimony from the other witness this morning.

I would just say that your complete statement, is incorporated as a part of the record. Again, thank you so much for coming over to help us out on this very important matter.

Too often good ideas with well meaning thrusts come out of the Congress and end up complicating and making it more difficult to do what we all want to do. I have been somewhat concerned that this might be one of the problems that we are encountering with this bill.

In any event, Dr. Kerr, we are pleased to welcome you at this time. I am glad to recognize you for any statement that you care to make, with the understanding that any written, formal statement that you offer here will be made part of the record.

## STATEMENT OF DONALD KERR, EG&G, INC., WELLESLEY, MA

Dr. KERR. Thank you, Mr. Chairman and members of the committee. I appreciate the opportunity to present my views relative to improving safe operations at the Department of Energy's nuclear reactors.

As you are aware, I am presently employed by EG&G, in Wellesley, MA, and in that capacity, I have the corporate responsibility for several of our DOE contracts to operate the Idaho National Engineer Laboratory and substantial responsibilities at the Nevada Test Site and the Morgantown Energy Technology Center.

Previously, I served as Director of the Los Alamos National Laboratory, and was for a time Acting Assistant Secretary for Defense Programs of DOE in 1977 to early 1979.

It is somewhat ironic that I presented testimony to this committee in 1980 relative to the need to replace obsolete and aging facilities at the Hanford Reservation and Savannah River because then, as now, the need for a safe and reliable capability to produce tritium and plutonium is the ultimate foundation for our nuclear deterrence posture.

As a prime contractor to the Department of Energy, particularly some of its higher risk operations, including the test reactors at Idaho, we take the obligation for safe operation very seriously—not only as a contractual commitment to DOE, but as a corporate commitment to protect our employees, the public, and the environment.

This commitment is accomplished by assuring that all of our managers put safety first, have high safety standards to attain, and establish, implement, and monitor programs to assure safe and reliable operations.

Clearly, the events of Three Mile Island in 1979 and Chernobyl just last year have caused the NRC, the commercial reactor operators, as well as the Department of Energy, to reevaluate and upgrade their safety programs and, in some cases, to revisit the question of how safe is safe enough.

What has occurred and is occurring at the DOE is really not that different from the changes being made in NRC and the commercial nuclear industry. It is important, however, to remember from the investigations of both of these accidents, that they were primarily the result of human error, in terms of management and operation of the facility.

This has again pointed out the need to assure the competence of plant management and staff and to verify that daily operations are conducted in strict compliance with technical specifications and operating procedures.

The issues of what is the appropriate oversight and how much risk is acceptable then naturally follow.

The Department of Energy has conducted several activities to critically assess its effectiveness in the nuclear safety area. It began in 1980, post-Three Mile Island, with the Nuclear Facility Personnel Qualification Committee, often referred to as the Crawford committee, which noted the separation of responsibility for safety and programmatic oversight and made a number of recommendations.

While the recommendations of that committee were not immediately implemented, several actions were taken to follow up on the lessons learned from TMI at all DOE facilities.

More recently, Secretary Herrington has elevated the Environmental, Safety, and Health organization to the Assistant Secretary level and taken steps to clarify line and staff responsibilities for nuclear safety. He also directed the new Assistant Secretary to undertake several key, initiatives in the safety and environmental areas, including a safety appraisal process that has been carried out for several facilities to this point in time.

That appraisal process was developed from the Institute of Nuclear Power Operations and NRC evaluation methods, and I think functions very well to the extent it has worked to date.

One might question the Department's timing on these changes. However, we should keep in mind that the production reactors had been operating for 25 years without any significant nuclear safety problems, and many feel that they have unique features that significantly reduce the probability of an accident relative to a commercial reactor.

However, the key point I want to make is that the right questions are being addressed and real problems are being corrected.

In terms of what is remaining to be addressed for the long-term, I think there are three areas at issue. The first and most important, in my view, is the question of assigning the responsibilities. Safety, to me, is a line management responsibility, which requires the contractor to achieve the highest quality in operation and maintenance. Such a quality performance is not achieved by prescriptive regulations or rulemaking, but through informed leadership with proper incentives.

Safety reviews and oversight must be carried out expeditiously with the best technical advice available, and a properly staffed and streamlined environment, safety, and health organization in DOE, not burdened by additional layers of bureaucracy, is needed.

Second, I agree with the recent National Academy of Sciences report that calls for an independent oversight committee. But I agree with their recommendations that such an oversight committee should report to the Secretary of Energy, and do so with public recommendations, requiring that the Secretary, in turn, respond to those recommendations publicly.

Third, the real issue, in my view, is creating excellence in the contractor organizations. In addition to providing proper incentives for the contractor management to perform to a standard that would be recognized as acceptable, I think there is considerable merit in bringing the DOE contractors together in an organization patterned after INPO, so that they can exchange information on their operating experience and, in particular, take advantage of a capability that often is not recognized, and which is that the Department of Energy facilities and laboratories, in fact, are the place where NRC and organizations worldwide have gone for the technology and approach to safety analysis time after time.

Those capabilities have been used in support of the civil nuclear program. Interestingly enough, they have not been fully employed with respect to the defense production reactors, and so, an organization that brought that expertise to the table and would provide it for the oversight and analysis of worst case scenarios in the defense facilities I think would be very useful.

There are two issues that to me appear to motivate Title I of the proposed S. 1085. The first is the concern that nuclear material production objectives have been emphasized without proper attention to health and safety at DOE nuclear facilities. Second is the loss of public confidence in DOE's ability to safely operate nuclear facilities.

The solution proposed in S. 1085, to give greater emphasis and visibility through creation of an independent nuclear safety board, of course, is one approach. The thing I object to is that the board's recommendations, when they are at odds with the Secretary's view, would require Presidential intervention for resolution.

While I concur with the most general objectives of Title I of S. 1085, I disagree with the mechanisms proposed. I think a new, independent Government agency is unnecessary and the legislated involvement of the President when disagreements exist would be a serious mistake.

A well-qualified advisory committee, reporting to the Secretary, with a contractor-operated INPO-like organization would, in my view, address public health and safety interests and would support increased levels of excellent safety performance in the future.

It would be further enhanced by providing better coordination within DOE so that all of its capabilities could be marshaled to address this question. I believe that the public nature of the interaction between the advisory board and the Secretary would be a giant step from the situation that exists today, and should be tried, recognizing that the Department itself has seen fit to commission studies, like the recent National Academy of Sciences review.

That concludes my remarks, Mr. Chairman.

[The prepared statement of Dr. Kerr follows:]

# STATEMENT OF
# DR. DONALD M. KERR
# SENIOR VICE PRESIDENT; EG&G, INC.

Mr. Chairman and Members of the Committee, thank you for the opportunity to present my views relative to improving safe operations of the Department of Energy's nuclear reactors by providing outside regulatory oversight.

I am employed by EG&G, Inc. of Wellesley, Massachusetts, as the Senior Vice President responsible for government operation. In this capacity I have corporate responsibility for several EG&G contracts with the Department of Energy at the Nevada Test Site, the Idaho National Engineering Laboratory, and the Morgantown Energy Technology Center. Prior to joining EG&G, Inc., I served as Director of the Los Alamos National Laboratory and Acting Assistant Secretary for Defense Programs at DOE.

It is somewhat ironic that I presented testimony to this Committee in 1980 relative to the need for new defense production reactors to replace aging and obsolete facilities at the Hanford Reservation and the Savannah River Plant. Then, as now, the need for a safe and reliable capability to produce tritium and plutonium is the ultimate foundation for our nuclear deterrence posture.

As a prime contractor for managing and operating several of the Department of Energy's high risk operations, including reactors at the Idaho National Engineering Laboratory, EG&G takes the obligation for safe operations very seriously, not only as a contractual commitment to DOE, but as a corporate commitment to protect our employees, the public and the environment. This commitment is accomplished by assuring that all of our managers put "safety first", have high safety standards, and establish and implement and monitor programs to assure safe and reliable operations.

In addressing the question of whether or not the country needs an external regulatory authority for nuclear safety of DOE reactor operations, several factors enter. I will present my views regarding how we come to consider this question - that is the events which have generated the question - what I think we have learned from these events, what changes have occurred in the DOE as a result, how effective these changes have or have not been, and what remains to be done.

As we are all aware, the experience and insights derived from accidents at Three Mile Island (March of 1979) and Chernobyl (April 1986) have caused the NRC, the commercial reactor operators, as well as DOE, to reevaluate and upgrade their safety programs and, in some cases revisit, the question of how safe is safe enough. What has occurred at the Department of Energy is really not that different from the changes being made in NRC and the commercial nuclear industry. Results from investigations of both of these incidents have concluded that the accidents were primarily the result of human error (management and operators). This has pointed out the need to assure the competence of plant management and staff and to verify that daily operations are conducted in strict compliance with technical specifications and operating procedures. The issues of what is the appropriate oversight and how much risk is acceptable naturally follow.

The DOE has conducted several activities to critically assess its effectiveness in the nuclear safety area. This effort began in 1980 with the Nuclear Facility Personnel

Qualification Committee generally referred to as the Crawford Committee. The Committee concluded that:

> "Headquarters' guidance and direction to the field units have become diffused and weakened due to the decentralization of the programs, and the organizational gap has widened between top management (presently, the Secretary of Energy) and the reactor safety overview organization. All these factors in combination operate to deprive the Secretary of the ability to assure that he is effectively carrying out his legal responsibilities for the protection of the public."

Although this recommendation was not immediately implemented, several actions were taken to follow up on lessons learned from TMI at all DOE facilities.

Secretary Herrington elevated the Environmental, Safety, and Health organization to Assistant Secretary level and clarified line and staff responsibilities for nuclear safety. The Secretary also directed the new Assistant Secretary for ES&H to undertake several key initiatives in the safety and environmental areas, including a DOE-wide environmental survey of the Department's existing and potential environmental problems and a Technical Safety Appraisal program to evaluate all aspects of safety at DOE's nuclear facilities. The Technical Safety Appraisal process has been developed from the Institute of Nuclear Power Operations (INPO) and NRC evaluation methods and implemented for all of the major facilities, and several appraisals have been completed. These appraisals, as well as additional reviews performed by the Roddis Committee and the National Academy of Sciences, are critically examining every aspect of these facilities, from design adequacy through operations. As a result of these activities, specific field office managers have shut down or derated several reactors pending management reassessment of risk and correction of deficiencies with safety implications. In my view these are appropriate actions to properly reflect the experience from TMI and Chernobyl into the operation of DOE reactors.

One might question the department's timing on these changes; however, we should keep in mind that the production reactors had been operating for 25 years without any significant nuclear safety problems and many feel that they have unique features that significantly reduce the probability of an accident relative to a commercial reactor. Nevertheless, the key point I want to make is that the right questions are being addressed and real problems are being corrected. In terms of what is remaining to be addressed for the long term, my view is that three issues must be considered:

1. Assigning the responsibility. Safety is a line management responsibility requiring the contractor to achieve the highest quality in operation and maintenance. Such a quality performance is not achieved by prescriptive regulations or rule making, but through informed leadership with proper incentives. Safety reviews and oversight must be carried out expeditiously with the best technical advice available. A properly staffed and streamlined ES&H organization, not burdened by additional layers of bureaucracy, is needed.
2. The need for an independent oversight committee. On this matter I agree with

the recent NAS report on "Safety Issues at the Defense Production Reactors":

"In lieu of transferring the Department's reactor safety responsibilities to the Nuclear Regulatory Commission or to some new entity also totally outside DOE, the committee recommends that an independent, external safety oversight committee, advisory to the Secretary of Energy, be established. The oversight committee should possess the following features: members should be of recognized stature with expertise covering the full range of disciplines relevant to reactor safety; members should include individuals from outside the DOE community; the committee should have authority to set its own agenda; the committee should be authorized to review both the product and the process of the Department and contractor efforts, including review of design, safety analysis, operations, management, inspection, and enforcement; the committee should be supported by a full-time technically qualified staff."

3. Creating excellence in contractor organizations. In addition to providing proper incentives, I believe there is considerable merit in bringing the Department's operating contractors into an organization patterned after INPO and having similar self-improvement

objectives. This type of organization would capitalize on the synergistic effects of having multiple contractors getting together, sharing experience through peer reviews, and mutually establishing standards which would enhance the performance of all of them. The organization should be allowed sufficient latitude and assurance for the contractors to self-manage, and self-direct the recommended enhancements or corrective actions.

Two principal issues appear to motivate Title I of the proposed Nuclear Protection and Safety Act of 1987:

1. A concern that nuclear material production objectives have been emphasized without proper attention to health and safety at relevant DOE facilities.
2. A loss of public confidence in DOE's ability to safely operate nuclear facilities.

The solution proposed in S.1085, Title I, is to give safety concerns greater emphasis and visibility through the creation of the independent Nuclear Safety Board, and when in the Secretary's view the Board's recommendation adversely affects DOE program requirements, to obtain a Presidential decision.

While concurring with the most general objectives of Title I of S.1085, I disagree with the mechanisms proposed. I think a new independent government agency is unnecessary, and legislated involvement of the President when disagreements exist would be a serious mistake. With a well qualified advisory committee to the Secretary and a contractor-operated INPO organization, I believe the public's health and safety interests will be well served and levels of safety performance will continue to improve in the future. This performance will be further enhanced by providing better coordination within DOE between program offices, EH&S, and contractors to promote quality performance and support those responsible for safe operations.

Senator EXON. Dr. Kerr, thank you very much.

Gentlemen, in listening to your testimony and other testimony and discussions that we have had in this regard, I believe that Senator Glenn's proposing this legislation has caused us all to focus on this safety issue a great deal. I suppose that, when we go on, as we must go on, to new, modern, state-of-the-art production facilities that we have been very slow on, we will do so with safety in mind. We have not moved along these lines like we should.

In listening to all of you, and with the budget crunch that we are in today in mind, I would just like to ask this question.

What role does the bidding process play in improving safety? What role does the competitive bidding process play? As a son of the free enterprise system, that I am very proud of, I would suspect that the lowest bidder might not necessarily be the safest operator of a nuclear facility.

I am thinking of that old, famous cartoon that shows the bum sucking on a straw underneath a bridge in a tramp camp saying yes, I was always the lowest bidder. I can picture that possibility being framed in the future by some surviving bum, sitting underneath a railroad track at some time in the future after a serious nuclear energy disaster, saying yes, I was the low bidder on that project.

Just for our information, would you briefly summarize how bids are estimated. I believe that the Department of Energy has generally asked for proposals. But I would say that this is an area where it is going to cost us an awful lot of money to provide the safety that we all think is necessary in these plants and that we need redundancy. I think this is a place where we need an awful lot of redundancy.

From your perspective, how well have we handled in the past the matter of what it is going to cost us to do these things? How does safety affect the general system of awarding of contracts? What has it been in the past and what do you think should be the guidelines for this in the future?

Dr. **Kerr**. I would be happy to address that particularly, since I would like to avoid the fate that you portrayed.

The contracts for operating the major Department of Energy facilities are a bit different than the commercial bidding that you referred to. These facilities are operated under conditions of the so-called "GOCO" arrangement. They are Government-owned/contractor-operated facilities.

Not only that, the contracts are cost type contracts, and the majority of them today, unlike in the past, are cost-plus award fee contracts, rather than the former cost-plus fixed fee contracts.

In the case of the contracts which EG&G has in Nevada and Idaho, they are all zero base award fee contracts. The award fee is not determined on the basis of being lowest in cost. In fact, the type of contract requires the Government to pay whatever costs are incurred. But any fee, which you can translate into any profit from operating that facility for the Government, is determined on the basis of meeting criteria established by the Department of Energy. And, in fact, those requirements include safety, health, and environment, as well as the conduct of operations. The operations office concerned is the contracting office. They are the ones that review the performance and establish the award fee based on performance.

The Department, as it wishes, can increase the value, if you will, the priority, given to safety by making that a larger proportion of the award fee. And so, the tools are there to do that within the form of contract now used.

There are still contracts in existence that are not award fee. They tend to be the ones with the not for profit institutions, such as universities or university consortia. But the production facilities, by and large, to this point are now all on an award fee basis, with the exception to Savannah River, which I understand will be changing.

Senator **Exon**. Do you have anything to add to that, Dr. Gilinsky?

Mr. **Gilinsky**. No, I don't, Mr. Chairman.

Senator **Exon**. Let me ask a couple of additional questions of each of you and then I will yield to Senator Glenn.

We are very glad that Senator Glenn has joined us this morning.

Dr. Gilinsky and Dr. Kerr, I am convinced that both of you feel very strongly that an independent safety board should be advisory. Is that right?

Mr. **Gilinsky**. Well, advisory-plus—I mean, in the sense that its recommendations should be public.

Senator **Exon**. Well, I will make that part of my question. Let me state the question again.

Both of you feel that this board should be advisory and not mandatory. Do you also agree that there should be a highly visible, highly public process, by which the board's recommendations to the Secretary are made and his responses recorded equally in a public fashion, so that all can be properly informed as to what the considerations, the concerns, and hopefully the solutions are?

Mr. **Gilinsky**. For myself, yes, Mr. Chairman. I think the Secretary should be required to respond within some reasonably short period of time, and that response should be as public as it can be.

Senator **Exon**. Dr. Kerr.

Dr. **Kerr**. I would agree with that: advisory, not mandatory, and with the interchange carried out in a public manner.

Senator **Exon**. I will ask both of you this question.

If we have such an advisory board, and if that board were either advisory or if it were more executive or mandatory, as envisioned in S. 1085, how would you envision such a board functioning?

How should it be structured to help the Secretary of Energy? How many members do you think it should have? I suspect that you would not want it too large. How much is too large, in your view? What would you think might be the number of staff that would be a part of such a board? In other words, what kind of resources do you think this board would need to be effective, if it were either advisory or mandatory?

Mr. **Gilinsky**. I think the board, as it is structured in the bill, looks like a good vehicle. I would limit the number of members to three, as they are limited in the bill. I would resist any temptation to increase that size, at least on the basis of my experience in the Nuclear Regulatory Commission. I think beyond that number you gain something in increased diversity, but you also lose a great deal in terms of increased administrative complexity. I think three is a fine number.

The staff level I think is adequate. But, as I mentioned, I would give such a board authority to contract independently for additional assistance. Such contracting may well be, in fact, very likely would be, with the national laboratories, the Department of Energy laboratories.

But, having its own budget would make that work proceed in a way which is more responsive to the board's interest and would add credibility to the result. I think it would be an important addition.

As far as the level of resources, I think I might increase it by as much as a factor of 10. The present level is, I believe, $5 million a year, and believe that the board should have fairly ample resources to conduct the safety work.

Senator **Exon**. So you think such a board, either advisory or mandatory, needs to have considerable staff, but also to keep that staff from becoming another great, big department. Does it need to have the authority to contract out to seek specific solutions to specific problems?

Mr. **Gilinsky**. Yes.

As Mr. Kerr mentioned, the NRC contracted with the Department for a good deal of work. One could (at least in those circumstances, where the Department was a licensee, which it is in connection with certain waste facilities), simply have required the Department to do a certain amount of safety work. That is what happens in the main.

But it is also very important to have some independent check on that through people that report directly to you, that are under contract directly to you. It is a very valuable addition, and I think it would enhance the functioning of the board.

Senator **Exon**. Dr. Kerr, would you care to add your comments or suggestions, especially if they differ from those of Dr. Gilinsky?

Dr. KERR. Well, I don't feel as strongly as he does about the number; but his experience with such commissions and boards is much greater than mine.

I would only suggest that the number not exceed a half dozen if greater breadth were required.

What I am concerned with is, as presently suggested, the requirements for political balance, technical expertise, and lack of conflicts of interest may make it very hard to find three, let alone more. And so, his suggestion that contractual authority be given to the board I think is an excellent one because, that way, people who might have conflicts of interest in dealing with one particular matter could then be available with their expertise to deal with other matters.

I would not be so expansive in providing the financial support. I think that limiting staff to 100 or even 50, if they are carefully selected and technically qualified, with the added flexibility of having the opportunity to contract for other expertise and capability, as required, could fit well within a $10 million to $20 million budget to start, rather than going to $50 million immediately, which would represent a substantial organization and capability, before any experience has been gained.

Senator EXON. Gentlemen, thank you very much.

I am very pleased now to recognize the Senator from Ohio, Senator Glenn, who has been a leader for a long, long time in this whole area of nuclear safety, both as a member of this committee and the committee of the Congress that he chairs, for any opening statement that he may have and for any questions that he has of the witnesses.

Senator Glenn.

Senator GLENN. Thank you, Mr. Chairman. I have no opening statement.

I am glad to see our witnesses here this morning. They are people that I have dealt with for a long, long time. I was sorry when Don left Los Alamos. I thought that was a mistaken move, but he did it for his own reasons. Also, we worked with Victor when he was over at NRC for so long. So it is a pleasure to see both of you again, even though we may be on opposite ends of the log on this particular issue.

I certainly respect your views on this, however.

Let me go back through the NAS report that came out just last week and read just a couple of things off to you.

It says that the committee found a high degree—this is under the title of DOE Safety Framework—"The committee found a high degree of confusion, both within DOE and among the contractor staff, concerning the safety objective. The committee concludes the Department has not clearly articulated, documented, or implemented any specific safety objective for its reactors."

I will skip a bit here and go on down the page, because I cannot read the whole page.

The next paragraph reads: "However, the committee finds that the Department"—the Department of Energy, that is—"has failed to specify its safety requirements clearly, has failed to apply them uniformly at the two production reactor sites, has failed to implement them in a timely manner," and it goes on with some other things there.

Over in the next part, after they have gone through the N reactor, they say that, "A thorough understanding of the behavior of the N reactor in a major loss of coolant accident does not currently exist." Then they have some other comments along that line.

Then, under a discussion of strengthening the technical basis for reactor safety management, they talk about the Department, "both at headquarters and at its field organizations, has relied almost entirely on its contractors to identify safety concerns and to recommend appropriate actions, in part because the imbalance in technical capabilities and experience between the contractors and DOE staff is of sufficient magnitude to preclude DOE from properly performing its audit function. There is a strong need for comprehensive DOE involvement in the operation of the production reactors. The committee recommends the Department acquire and properly assign the resources and talent necessary to insure that safe operation is being attained." It says, "that the Department acquire." The Department does not have that capability within itself now.

I read on in the next paragraph: "The committee found that the Department's approach to management falls short of reasonable expectation in attempting to cope with the mix of production and safety responsibilities."

I will skip down a bit: "The committee also recommends that in strengthening the monitoring of safety at the DOE production reactors, the Department should expand its capability to sponsor research," and it goes on, "research, conduct and review safety analysis," and so on.

I will read the next paragraph in its entirety. "The committee concludes that the Department's safety oversight of the production reactors is ingrown and largely outside the scrutiny of the public. Weaknesses in management of the defense production reactors have led to a loose-knit system of largely self-regulated contractors, operating within budgetary constraints imposed by and on the Department."

Well, those are the major points in there. But what we try to do is to address this problem. That is all we are trying to do.

I always hate to disagree with my esteemed chairman. But, when he says that the recommendations of the board would be mandatory, that is not provided in this bill. I have heard it over and over and over again during these hearings. That is not provided in this bill.

The outside advisory board would make recommendations. Those recommendations might be taken or not taken by the Secretary of Energy. They would be in different categories. Some would be absolutely mandatory in importance, as far as whether we are about to have a meltdown somewhere or not, and others would be of lesser importance.

In the very few, instances where the board was concerned enough that they said this is something where safety and health is absolutely endangered if we continue in the direction in which we are going right now, in the very few instances that fit in that category, then, in that situation, before any plant is forced to be shut down, the decision could be bucked up to the President because only the President has all the information to weigh the safety and the national security needs. That is the only time they would be bucked to the President and the only time he would be required to make a decision.

Now, you both pointed out that the safety record of 25 years stands. There has been no problem. But I would submit to both of you that we have been one lucky country. When you look at what has happened, that we had no containment vessel at Hanford, that the core is swelling and so on. So we finally shut that one down. But we have cracks at Savannah River. And Savannah River operated at power levels for 7 years which were beyond the ability of the emergency core cooling system to handle, by the latest estimate.

We were lucky. We were mighty lucky. The people in Augusta, GA, 20 miles away ought to thank their lucky stars that something did not happen, where they were downwind of nuclear contamination. There have been 25 years of safety, yes, from any blowup. But I would not say that we have had 25 years of safety around Fernald, OH, where the filtration bags were broken and for a period of 3 months the dust drifted down on schools and businesses and everything in the small town at Fernald. And nobody closed it off. We found out that the safety switches, which were supposed to be giving a warning of this in the "bag house" as it is called, had been shut off because they kept giving off an alarm. So they were just shut off.

Now I don't want to get into all of the minor details on this. But I just see absolutely nothing wrong with having a second opinion.

If I get cancer tomorrow—and I hope I don't—I can guarantee you that I am going to have a second opinion, and maybe a third or a fourth opinion before I agree with some surgeon carving me up.

And here we are, with something that is far more serious than an individual cancer case, and we are saying yes, we will be advisory. But what is the power of the board if it is only advisory to the Secretary and cannot go beyond that? And what if it involves a national security matter that cannot be made public? Then the board is strictly advisory, is really nothing, and we are back to business as usual, unless the Secretary moves.

Now, the history throughout the DOE has been that they were set for production, and some of the safety concerns did have their corners cut. Otherwise, we would not have contaminated aquifer levels, we would not have a mammoth cleanup program facing us at these plants. I agree with all of you that we need to update all of these facilities. It is tragic, the way we have let these things go downhill. The newest facility in the whole DOE production chain is 24 years old.

That is just tragic. I agree with both of you.

But we are here facing now a cleanup program at these plants. We are facing an environmental cleanup at these plants that never should have been allowed to occur in the first place. It has not been permitted under NRC in the operation of the civilian plants. We don't permit contamination around the plants, such as has been accepted as almost the norm for DOE facilities.

So I just cannot see the disadvantage of saying that in those few situations where the safety concerns are so great and yet the production requirements may also be so great because of an international situation that is known at State, maybe in Defense, and maybe the Secretary of Energy is not aware of it, what on earth can be wrong with saying that in those few times when that occurs, safety will get a second opinion for the outside board and that it will be bucked to the President for a final decision because only the President and the NSC staff and all those people are the ones that have all the information funneling in.

The Secretary of Energy is not the Secretary of State, he is not the Secretary of Defense. He is given the job of producing this material, and he may or may not know what is going on with the arms control negotiations, where the production facilities might be very important. And it is important right now. If you get into some of the INF situations, you can see the imbalances—and I have been into them recently—you can see the imbalances between our production capacity and the Soviet production capacity, and you will begin to see some of the reasons why we are making some of the decisions that we are making. They are not all good.

So you can get into some things like that where only the President has that information. What on earth is wrong in the few cases where the advisory board says look, here is one that we are really concerned about something happening? What, for instance, if an outside advisory board had said that Savannah River—we have a production goal and Savannah River is going to continue, as it did for 7 years. And we are going to continue that because we need the production; we have to meet our production goals.

Yet here is Savannah River, operating over the capacity of the emergency core cooling system to handle it.

Now, there might be a time when I would go along with it, and I would say if you were down in the President's office, you would say that this is so important for the future of arms control in the whole world and it has operated for 7 years that I will take that chance, because we need that production. That would be a presidential decision.

The Secretary of Energy should not be required to make that decision. What on earth is wrong with that kind of rationale?

This is for either one of you.

Mr. GILINSKY. Senator, I guess I did not feel that I was at the opposite end of the log here.

Senator GLENN. Well, I think you came out with keeping the board advisory only, as I understood it.

Mr. GILINSKY. Well, calling a nuclear safety board "advisory" has a different ring to it, and I am not sure that I like that word.

But I would not make the—well, I guess I would drop section (h) here in the bill, which deals with the provisions you have been discussing.

Senator GLENN. What does section (h) do? I will ask you as it is not at my fingertips.

Mr. GILINSKY. It is on page 35.

If we are separated, Senator, I think it is by agreement rather than disagreement.

Senator GLENN. OK, good. Maybe I put words into your mouth that were not welcome.

Mr. **Gilinsky**. I don't recall saying anything about the safety record one way or the other.

Senator **Glenn**. The only reason I said that, Vic, was because I thought you had said that the board should be advisory only and should not have the capacity to buck particular concerns on to the President for his decision.

Mr. **Gilinsky**. Yes, that is what I said. But my starting point is my experience with——

Senator **Glenn**. Let me add one thing before you get into this that I should have spelled out before. It is still advisory to the President.

Mr. **Gilinsky**. I understand.

Senator **Glenn**. It is still advisory only. It then becomes a presidential decision, as between national security and safety concerns. He makes the final decision because only he, in his office, has all the information.

Mr. **Gilinsky**. My feeling is that you would get the effect that you want to get by having the board speak in public, by having the Secretary be required to respond.

Senator **Glenn**. But everything cannot go public.

Mr. **Gilinsky**. Well, Congress would know about it. You would know about it.

Senator **Glenn**. That does not mean that I can go public.

Mr. **Gilinsky**. That is true. But these are recommendations that the Congress would be aware of, that the President would be aware of.

My feeling is, on the basis of my experience with at least the NRC's own advisory committee, that these additional features would complicate its role in ways that are not always helpful even for a safety function.

To be utterly frank, I feel that the NRC's advisory committee was often not as blunt or straight or tough with its advice because it was involved in the licensing process. If it said something critical at a point where a reactor is supposed to get licensed, that plant would not get licensed. And I believe they held back for that reason.

You may get that kind of effect just as much as you may get an effect where the board—of course, that is not what DOE is concerned about. DOE is concerned that the board is going to be too tough. You may get one as likely as the other.

I think it introduces complications which are going to lead to a kind of game of musical chairs as to whom is to blame, the Congress, the board, DOE, and people will be asking for appropriations to get off the hook and that sort of thing. All of this will get away from the main function, which is for this board to really think hard about the safety problems and tell the Secretary, Congress, and the public, what it thinks about it, in as straight and competent way as it can.

I think you would achieve all of that with your bill, which I think is a terribly important contribution, without the addition of that section.

Senator **Glenn**. Well, all I would say is you are depending on public and the Congress, and there are times when the decisions are going to be classified, when you cannot go public, when you cannot put these things out, nor should Congress put them out. It may be very important in arms control or whatever.

I just cannot see anything wrong with saying that in those rare instances—I do not anticipate there is going to be one or two times a year that anything gets bucked uphill—but for the Secretary of Energy to sit back and say I can't fuss with Jim Miller over at OMB anymore over this thing, so I am not going to do something that the board recommends because of whatever, when he may not have the whole picture and when it may be a real health and safety concern—I just cannot see what the difficulty is, why it is a disadvantage, to give final authority to the President when he is the only one who has all the information.

I am over my time considerably, Mr. Chairman. Thank you.

Senator **Exon**. Thank you, Senator Glenn.

Let me just say that I have a question or two for the witnesses. I have been listening with great interest to Senator Glenn on this subject during several functions, and I just want to emphasize again that Senator Glenn and Senator Exon usually agree on most things. I think we agree completely on what should be done in this area.

The problem and the disagreement, if there is one, is what does S. 1085 do.

Senator Glenn puts a very reasonable approach on S. 1085. He says it is not mandatory, that it is advisory because the President can turn around and veto anything that the board does.

The staffs of this committee and Senator Glenn's committee have had extensive discussions on this subject. I want to say, for the record, that it is the opinion of the staff of this subcommittee that, regardless of where we are in this bill now, the staff of Senator Glenn's committee and the staff of the Armed Services Committee have been split right down the middle from the beginning.

The staff of Senator Glenn's committee, as I understand it—and I would like to hear from Senator Glenn on this, because I think debates in these areas have to be clarified—has maintained from the beginning that this is a mandatory type board. We, from the beginning, have maintained that it should be advisory.

The contention is made that this is not mandatory. I would simply refer to page 36 of the bill, where the top line says, "The Secretary shall," I repeat, "The Secretary shall implement each recommendation of the board with respect to the following," and then it goes on down the line.

S. 1085 says that the board's actions must be implemented within 1 year, unless the President personally intervenes in three ways, and then it goes on through the bill and says how that should be.

One of the parts of this bill that I think we should give some attention to is the fact that no consideration, or little consideration, can be given to cost. Costs are a very important part of any legislation that we enact.

I would just like to point out that I completely agree with the report that Senator Glenn quoted extensively from in his remarks. But I would certainly say that the report that he referred to has to do with the questioning of line management techniques in the Department of Energy. I do not believe, and I would stand to be corrected if it could be pointed out that I am wrong, but nowhere does the NAS report suggest that DOE should turn its basic operations over to an independent board. I think that basically is what the disagreement here is all about.

It might well be in markup, Senator Glenn, that we can make some changes in this legislation, where it would do the basic things that you have stated frequently you want it to do.

So, I think, more than anything else, it might be a difference of opinion as to what this legal language does bring about, how are we going to do it, and how are we going to stay away from the President of the United States becoming involved in miniscule matters that I think he should be involved in.

Having said all of that, I would just like to ask this question of our two witnesses.

Are you concerned, as I am, about the potential for intervenors to have a field day with the safety board, as envisioned in S. 1085, as it is presently drawn, in my interpretation?

Let's take, for example, the matter of the containment domes on reactors.

It seems reasonable to assume that such a measure would reduce the risks to public health and safety, which are the only criteria the board has to consider in making its binding recommendations to the Secretary. The fact that it might cost as much to do that as to build a new production reactor is of no consequence under S. 1085 and the report language.

Now, if you were an outside intervenor, wouldn't you be looking forward to taking the board to court, to force them to make a binding recommendation for containment domes to the Secretary? Does not the latitude of S. 1085 leave a potential field day for outside intervenors?

Does that give you two expert witnesses some concern as it does the chairman of this subcommittee?

Dr. KERR. Mr. Chairman, my view, simply stated, is that I think S. 1085, as presently drafted, has a variety of opportunities within it for mischief, and it does not, in my view, address the main issue that Senator Glenn brought up and you brought up as well, and that is the majority of the concerns that are addressed in the Academy report and were addressed by Senator Glenn just now tend to be in the area of the effectiveness of the Department of Energy's line management of these facilities, and whether they recognized problems in a timely way and took the appropriate action.

The line management that we are talking about is a line that extends from the Secretary of Energy through his staff and program directors to the field offices and, finally, to the operating contractors. And the remedy for the situation is clearly to strengthen that line management chain.

It seems to me that the person who you wish to influence most in that regard is the Secretary of Energy in terms of the responsibilities he has. Those responsibilities are not simply for the production of nuclear materials. Those, in fact, extend to research, developing, testing, and production of the weapons. They also are significant in the arms control area.

So the Secretary of Energy does, in fact, have a major role in this overall national security area.

It would seem to me that, in making a major departure from past practice, the first step ought to be to do those things that would provide incentives and interest on the part of the Secretary and his senior people to take on these line management questions that have been raised, and to further note that the Academy study itself was commissioned by the Department in order to help show what things need attention.

I would suggest that one thing the Congress might wish to do is to see how the Department responds to this very public document, to this very public set of questions, before moving a step further in terms of making oversight mandatory.

I take Senator Glenn's point that this is advisory, albeit, as, Victor Gilinsky has pointed out and you have pointed out, it is advisory with at least a capital "A" and would be seen by many, I think, as mandatory and, hence, opening the door to the sort of intervenor pressures that you mentioned, Mr. Chairman.

So, my view is that public health and safety and the congressional concerns that flow from them are well addressed in an advisory committee that reports to the Secretary, does so publicly, and he responds publicly.

I would also suggest that those areas that might be considered classified or restricted because of national security considerations are very rarely those that have to do with the line management of operations and the safe operation of these facilities; but, in fact, are more tied to the specific requirements for material, the specific things that are requested through the Presidential Stockpile Memorandum. I would suggest that the Secretary of Energy would say that specific production numbers might be classified, yet still be able to address a safety issue if it were raised by an advisory board.

Senator EXON. Dr. Gilinsky, do you have a comment?

Mr. GILINSKY. Mr. Chairman, many of these concerns are issues that deal with strengthening line management in the Department. It also has to be said, though, that line management in the Department has been slow to pick up on these questions.

There has also been a problem with what is usually called "institutional memory." There is a lot of turnover in the Department and people don't remember what the problems were or why things got done.

I think having a board of this sort would really perform an important function in just keeping people on their toes. There is no question about that in my mind.

On the matter of bucking things to the President, I don't know how relevant this is, but Senator Glenn will remember it. I remember one export matter, highly enriched uranium exports, going to the President. President Carter looked at every one and approved every one. Somehow, it did not seem to me the right way to handle it.

I have another analogy. (Again, it is a little bit like all analogies, in that it is imperfect.) It is the separation between intelligence and policy. It seems to me there is a function for reviewing and oversight and safety, which is separate from directing the facilities. People have different responsibilities.

I think there is an advantage to keeping these distinctions.

I think the bill, without those extra provisions that we have been discussing, is really a very powerful result, and I think you would get what you are seeking, and what I think we all want, which is tighter oversight over these facilities and pressure to improve things where they are not as they should be.

Senator **Exon**. I will recognize Senator Glenn in a moment. I appreciate both your remarks and answers to my questions. I think you have framed it well toward the end, Dr. Gillinsky. As I emphasized in my opening statement and all through my questioning, we all want to get there and we are convinced we need to get there. But, once we are there, we just hope we have not created something that would give us an awful lot of trouble when we reach our end goal.

So, thank you for your closing argument and your salute to Senator Glenn's leadership, as I saluted him earlier. But don't give him too much enthusiasm because he has enough going for him already.

Senator Glenn.

Senator **Glenn**. I was introduced as an "expert" once and I did not like it because a man followed that up immediately by saying that an "ex" is a has-been and a "spurt" is a little drip under pressure.

Line management has been mentioned here. The reason we have this is because line management at DOE has been poor. It has not addressed the safety concerns through the years. If it had, we would not have all the uranium dust coming down over Fernald, OH; we would not have reactors operating with cracks which would have to be shut down because we had misestimated, because we had the wrong estimates on the capacity of the emergency core cooling.

We have been lucky, and we are trying to correct that. So line management, as far as saying that we are going to strengthen line management, I very much want that to happen, Mr. Chairman. I think line management should be improved. But that is an open-end question, as to whether line management is really going to be able to do this job or not.

I read from the NAS report and will not repeat myself, where they said repeatedly that it has not been adequate. It is an open question as to whether it will be adequate in the future.

The board has no authority over DOE. The board is interested in one thing only. They don't take into consideration production matters. They don't take into consideration foreign policy. They don't take into consideration anything except in their best estimate is this operation about to blow or is it about to give us major problems.

That is all they do. They do not take into consideration foreign policy.

Now, Dr. Gilinsky indicated that President Carter had things bucked to him for export licenses. He got into that. He had a background in that area, I guess, and I think it is notable, what you just said a moment ago, that he approved every single one of them.

Now, he was the only one—and this was a good example—the only one who knew what was going on with the State Department, in negotiations with other countries, in what our arms control efforts might be in other countries, in what the best information from the intelligence community showed was the ability of that other country in nuclear matters on their own and how it fit under NPT, how it fit under the Nuclear Nonproliferation Act that I was involved in back in 1978. He is the only one—his office was the repository, of all those different considerations.

Now, I don't know whether he made the right decision in all those cases or not. But at least that decision was not left up to a Secretary of Energy who did not have all that information from all those different sources.

So I think that is an excellent example, and the reason why we think this should be bucked to the President. The President alone knows what our production requirements are and balances those against all the other considerations of foreign policy and domestic policy and health and safety.

There might be times, let's say, when there is a 5 percent chance that something might give us a serious melt-down problem someplace, where we are in a particular time period where he takes that chance. That should be a presidential decision. It should not just be a decision of the Secretary of Energy, as I see it.

I would ask Dr. Kerr this question.

If line management is adequate to handle this whole thing, then why did National Lead of Ohio get such good marks at Fernald while you were Assistant Secretary of Energy for Defense Programs?

Dr. KERR. I think the only correct answer, sir, is that I should have paid more attention to that at the time.

Senator GLENN. I concur.

Dr. KERR. There is no other response.

Senator GLENN. Well, that is just one example and the reason why I hope they do improve the line management approach to this subject. It is desperately needed. But, as I say, most of these things have been given to a contractor and the contractor runs pretty much his own program.

I do think this. Let me be complimentary to the Department. Finally, I think we have, over the past 1½ years or 2 years, gotten the Department's attention. It is a little bit like the story about how you have to hit the mule over the head with a two by four to get his attention; then you can get something done. Well, it has been a little bit like that. I think we do have the Department's attention now and I think they are trying to address these problems.

But, once again, they are up against a lot of considerations here and I just see nothing wrong with bucking this to the President in those very few situations where the President's office is the only one that has the information to make the decisions that we are talking about. Otherwise, the board becomes just another advisory board. Contrary to what the chairman said a little while ago, he pointed out the top of page 36, where it says that, "The Secretary shall implement each recommendation of the board with respect to each operating Department of Energy nuclear facility covered by the report unless"—that next word is "unless." Then a whole series of situations is given where the Secretary of Energy can just say no.

Now, that, then, poses a problem for the board. Do they think that that issue is important enough and is so likely to be a meltdown or a destructive type situation that they think the President should make that decision? Once again, it is advisory.

They would have the power to say OK, the Secretary of Energy has said that this is no danger, but we still feel that this is a very important matter for the future of this country and they want a presidential decision on it.

I do not anticipate that that would happen very often. But what on earth is wrong with that? I just can see nothing wrong in that situation with saying that the Secretary can be required to get a presidential decision because the President's office is the only one that has all the information.

You gave me an answer on that before, Victor, but Don did not get a chance to answer on that. I guess you have already given your answer. You just think it can be handled in other ways.

But what is wrong with that safety valve, with keeping the pressure on the Secretary of Energy so that he or she knows that this cannot be just ignored? You can't just say no to the board over here on the side and say you are just advisory and I will ignore you over here. What is wrong in those rare cases where it really is important, like cracks in the reactor at Savannah, like an emergency core cooling system that is not working up to the capacity that the reactor is running at, what is wrong in those cases with saying that we will buck this to the President because he has all the final information on which to make a decision?

Dr. **Kerr**. I tried to address that, Senator Glenn, in my previous answer to the chairman. To just repeat it in brief, my view is that doing this publicly, where the recommendations to the Secretary are a matter of record and his response also a matter of record, will provide both the public and the Congress with information on critical issues of the sort that you have brought up. Further raising an issue of this sort to the President does not necessarily require that this board have a direct route, since the Congress can, through its oversight responsibilities, raise such questions when it concerns them.

So I do not think there is any lack of a mechanism to raise these very critical issues for Presidential attention.

What I am concerned about is that it will become a routine process with inadequate checks and balances in terms of what issues do get raised.

So, I would propose that the board report to the Secretary, as I have mentioned before; that, given your interest in improving the line management, the person you want to get on board most quickly is the Secretary; and that some partnership, then, between your interests and his would be the most effective way to do that; leaving open the possibility of a subsequent change.

Senator **Glenn**. My time is up, but I have just one comment, Mr. Chairman.

You started off your statement by saying "publicly." What if it is a classified matter? I can see that a lot of these things the board might recommend would be highly classified and will not be on the outside, will not be public. What about in a situation like that?

What happens then? If it is classified, then the public does not know and maybe even the Congress does not know.

Do you think that in a situation where it is classified, it could go to the President or should go to the President? We won't have public opinion then.

Dr. **KERR**. First of all, in my experience, it is the case that classification refers to the specifics, to the amounts of material to be produced, the details of weapons design, the relationship of production to the deployment of forces, and that safety issues, in the main, can be dealt with without invoking classification. And, in fact, if classification were invoked broadly, it would be a misuse of those provisions.

Consequently, I think the oversight provided by the committees of Congress with access to classified material would be an adequate safeguard of the public interest.

Mr. **GILINSKY**. Sir, may I add a word.

Senator **GLENN**. Well, I see that my time is up.

Senator **EXON**. Certainly. Go ahead, Dr. Gilinsky.

Mr. **GILINSKY**. My feeling is that the Secretary and the President will just send the thing right back here and ask for an appropriation and they will then be off the hook and the whole thing will be over.

I am not coming at this from a concern about being too tough on DOE. I think you ought to know me better than that.

I think it would work better if you left those provisions out. I think you would get what you are seeking from the recommendations of the board, which the Secretary would have to deal with. And if we actually got to a point where a board thought something ought to be shut down immediately, I just cannot imagine that not having an immediate effect. It would have to be an extraordinary situation for the Secretary not to follow the recommendations of the board.

Senator **GLENN**. But under line management it has gone unknown all these years, until it was pointed out that Savannah River operated for 7 years without adequate safety.

Mr. **GILINSKY**. Well, it would not be. That is why you have put this forward.

Senator **EXON**. Once again, I want to thank you for appearing before us today, gentlemen.

What this comes down to, of course, is a situation with regard to definition of what we want to get done and how we want to do it.

My concern with the language of S. 1085, is simply that, in actual practice, it would make the board not advisory, but mandatory in its basic thrust. Also, it seems to me, it would invite all kinds of intervenors and court challenges about what should or should not be done in certain areas.

I guess what I am concerned about is that an independent board, which is designed to be independent and to have some mandatory authority, unless it is overruled or vetoed eventually by the President, would, in and of itself, in and of its language and design, set up some confrontations that might get in the way of proper safety and security measures, rather than helping them.

So, I think, basically, what I said earlier comes back down to the crux of the situation, which is that we basically all want to do the same thing, and that is to improve our safety, especially with the difficulties that we have right now.

So it comes down to a matter of what will be the wording, what changes will be made in S. 1085, if, indeed, S. 1085, becomes the markup vehicle that it could, as far as the action of this Armed Services Committee is concerned.

I have no further question.

Do you have any other questions or comments?

Senator GLENN. Just a couple, Mr. Chairman. Thank you.

Let me just reply to the intervenors situation. I did not reply to that before.

I do not see that that changes anything from present law, really. We have all sorts of lawsuits against DOE right now. We have community intervenor groups and State attorneys general that have filed suits, and there are all sorts of intervenor actions like that underway against DOE right now.

We have some in Ohio, as a result of the Fernald situation. So I don't see that that really changes with this legislation at all.

The only other thing is this. I want to make very clear in the record that paragraph (h)(1), which the chairman referred to, as showing that the board is mandatory, because it says, "The Secretary shall," it uses those words, "The Secretary shall," all this was intended to do was to force the Secretary to make a decision one way or another about the board's recommendations. It does not mandate what the decision might be at all.

The purpose of the paragraph is to prevent the Secretary from just killing a recommendation of the board by ignoring it. He has to say yes or no to recommendations of the board.

But he can say no, and in many cases might. And in those cases where the board says this is so important that we still want a decision on this and we want to question this, then it goes to the President and the President can say no. And that is the end of it.

So the board is advisory. It is advisory only.

I wanted to make sure that that was a part of the record before we closed.

I really do not think I have any other questions, Mr. Chairman.

Senator EXON. Senator Glenn, thank you very much.

Gentlemen, thank you very much.

We believe that your testimony here this morning puts additional light and perspective on what we are all trying to do. I appreciate very much your being here today.

We are adjourned.

[Whereupon, at 11:20 a.m., the subcommittee adjourned, to reconvene upon the call of the Chair.]

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